MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XL. No. 6.

$4.00 per year. Single Copy 10 Cents.

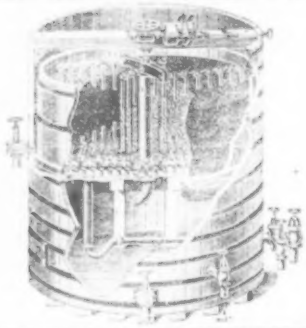
COAL AND INDUSTRIAL SUPREMACY.

[London Iron and Coal Trades Review.]

Industrial supremacy must, in the long run, be affected by the extent to which nations are possessed of coal resources, but not necessarily for generations. In the case of our own country, we are, happily, possessed of larger coal reserves than any other country in Europe, with the single exception of Russia, but those reserves have been depleted to a much greater extent than those of other countries. For more than half a century Great Britain produced almost, if not quite, as much coal as all the other nations of the world put together. The natural endowments with which competitive nations started on the race for supremacy are not, therefore, those of the present time. Nevertheless, the extent of the depletion of the coal supplies of the United Kingdom is much less than would be supposed after more than a century of exhaustion, beginning with an annual output of 10,000,000 tons, and ending with one of more than 225,000,000. During the first twenty years of the period our annual output of coal was under 20,000,000 tons a year. During the last twenty years it was over 180,000,000 tons a year. Over the whole period our total output of coal has probably been more than 10,000,000,000 tons. * * * If the problem of the future supremacy of the leading nations of the world were to be determined by the actually ascertained extent of available coal resources, our own country would no doubt cut but a poor figure in presence of the vastly larger resources possessed by the United States, China and Russia, not to speak of our own possessions of Canada, New South Wales and India. The area of the British coal fields has been variously computed at from 9000 to 16,000 square miles, but this compares unfavorably in a quantitative aspect with the vaster areas—variously computed at 150,000 to 200,000 square miles for each—of the United States and China. As, however, neither China, Russia nor India are likely to come into the general competition of the world for many years to come, we need only look upon them as countries which will probably have their hands sufficiently full in attending to their own home requirements. India, indeed, has taken twenty years to raise her coal output from 1,000,000 to 5,000,000 tons a year.

THE FULL TABLE OF CONTENTS WILL BE FOUND ON PAGE 100.

Baltimore, August 29, 1901.

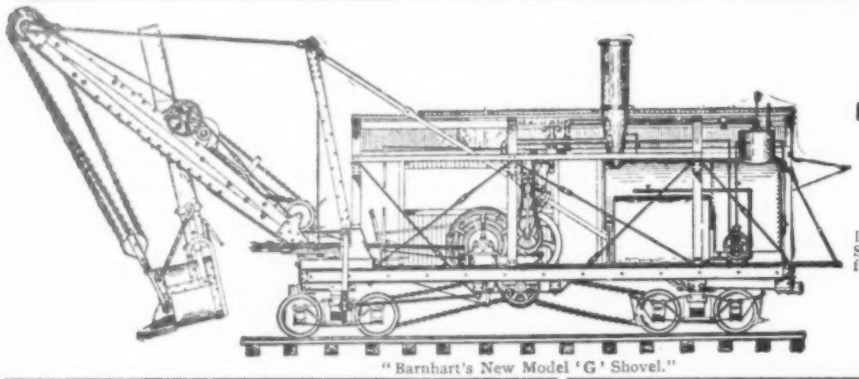


Pure Water

For Water Works, Breweries, Cotton Mills, Bleacheries, and Private Residences. . . .

Constructed under the JEWELL, HYATT & WARREN PATENTS.
Patents Sustained by the Highest Courts.
Highest Efficiency. Lowest Prices.

NEW YORK CONTINENTAL JEWELL FILTRATION CO. (Write for Catalog.) 15 Broad St., NEW YORK.
40-42 W. Quincy Street, CHICAGO.



"Barnhart's New Model 'G' Shovel."

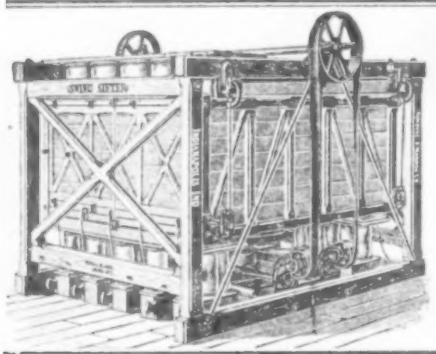
THE MARION STEAM SHOVEL CO.

Manufacturers of Steam Shovels, Ballast Unloaders, Dredges and Ditchers, etc., etc., suitable for all classes of work.

We have recently brought out several new machines and improved on old ones. Investigate us thoroughly. Special attention called to our new Model "G" and Improved Style "A" Steam Shovels. Our machines are in use in nearly all parts of the world. For full information address

The Marion Steam Shovel Co.

MARION, O.
Or GEO. W. BARNHART, Western Manager, No. 4 Sutter St., San Francisco Cal.



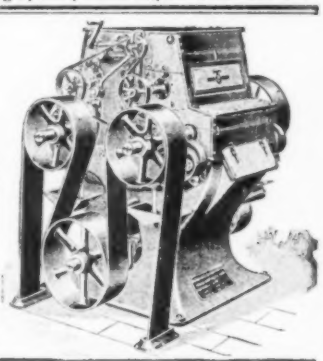
Mill Machinery...

WE BUILD **Roller Flour Mills** from Custom Mills of small capacity to Mills of the largest capacity. Also small Custom Mills on the Buhr Stone System. 85 sizes and styles of Portable Buhr Stone Mills for all kinds of Grinding. Roller, Corn and Feed Mills, Grain Cleaners, Elevators, Mill Supplies, Bolting Cloth, Etc.

HIGH-GRADE POWER CONNECTIONS, All Kinds.
PRACTICAL ROPE DRIVES, GEARING.

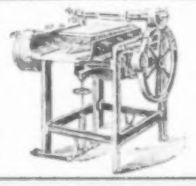
NORDYKE & MARMON CO., 86 Dey St., Indianapolis Ind., U. S. A.

CORRESPONDENCE SOLICITED.



F. A. WALKER, Pres. M. B. FITHIAN, Sec'y.

S. H. SINCLAIR CO.
Manufacturer of
LAUNDRY MACHINERY.



"THE SINCLAIR" IRONER
Is the First and the Best

8-10 S. Canal St.
CHICAGO.
Write for Prices and Catalogue.

Do You Want To Buy
"The Columbia" Modern Laundry Machinery
Is the Cheapest and Best.
Latest. "Up-To-Date." "Prices Right."
WILSON LAUNDRY MACHINERY CO., Send for Catalog R. Columbia, Pa.

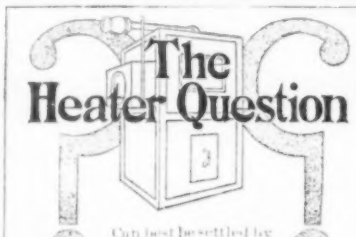
Laundry Machinery.

CARRIAGE, WAGON & TRUCK
D. WILCOX MFG. CO.
Mechanicsburg, Pa.
FORGINGS.

SHARP'S Latest Styles Ironing & Washing Machinery
Complete Plants Supplied.
ADAMS LAUNDRY MACHINERY CO., 1931-1937 6th Ave., TROY, N. Y.

EXTRA HEAVY

Suspension Braces. SMELTING FURNACE BARROW.
Largely Used and Has No Equal.
JACKSON MFG. CO., - Harrisburg, Pa.
MINING CARS. WIRE ROPE THIMBLE.



The Heater Question

Can best be settled by adopting the heater that has answered all the uncertainties about selecting the proper type, efficiency and return upon the investment—most often to the satisfaction of those who have used it. Over 900,000 H. P. of the

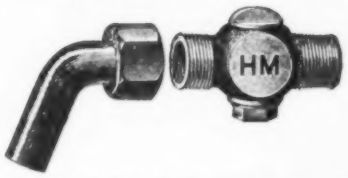
Webster Feed Water Heater and Purifier

have been sold, and answered this question to many hundreds of buyers.

We issue a little book that goes into the considerations—tersely and pointedly. It's good reading and profitable for the man who owns a steam plant.

WARREN WEBSTER & CO.
Manufacturers
CAMDEN, NEW JERSEY

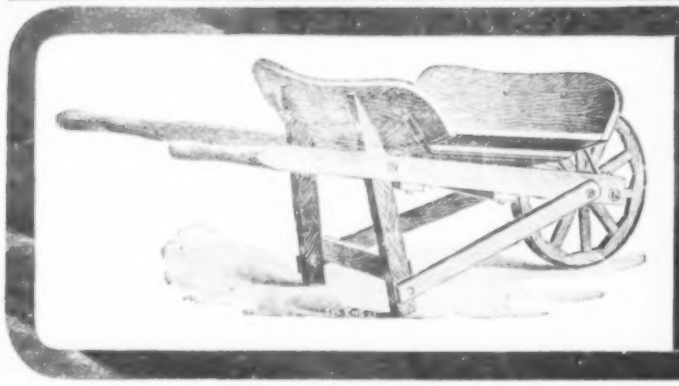
MUELLER
Corporation Cocks



are noted for their metal, workmanship and quick shipping qualities.

We like to and do ship promptly wire orders, but you are wise who protect yourselves now.

H. MUELLER MFG. CO.,
DECATUR, ILL.



Our Road Making Equipments
The Standard.

Barrows, Wheel Scrapers, Grading Plows, Drag Scrapers, Dump Carts and Cars, etc.

We will send you illustrated facts free for the asking.

The Kilbourne & Jacobs Mfg. Co.
"Barrow Makers." Columbus, Ohio.

es,
and

ORK.

).

ers,

ones,
roved
For

Cal.

ery
y.

KS

work-
ping

mpt-
wise

O.,

C

Carro
Robe
Valk
A
The
A
Bush
Watt
Woo
A
Ame
A
Morr
Phil
A
Farg
Hens
A
Ame
A
Stan
A
Clay
Harr
Inge
McK
Rau
Smi
Silv
Sill
A
Bail
Hie
Hun
Mag
Mer
Rya
A
Hie
Mag
Rya
A
Bry
Mak
Mill
Fra
Sim
Wal
Whe
A
Ame
Sch
Eur
Lou
Lyk
San
Sch
Vir
A
Joh
Kea
Sou
A
Cor
Han
B
B
Ame
Bal
B
N. I
B
Bak
Con
Han
Hor
Inte
Mag
Mar
Mar
Mer
Mer
Mid
Rich
Sec
Spe
Tho
Wil
B
Am
Am
B
Pax
B
Ale
Ain
Bal
Bos
Cal
Can
Cle
Dod
Eur
Fal
Fay
Fre
Gar
Lon
Mel
Mu
N.
Pec
Pee
Rhe
Ros
Sch
Sch
Shu
Tex
Wil
B
Aul
Cal
Jed
Lin
Tal
B
Tha
Am
B
Rh
Shu
Tex
Wi
B
Mo
Rh
Shu
Th
B
Mc
A
Ast
Pa
Ste
B
All
An
Ast
Bos

XUM

Classified Index of Advertisers.

For Alphabetical Index See Page 29.

Acid Chambers.
Caroline Iron Works, Baltimore, Md.
Robertson Mfg. Co., James, Baltimore, Md.
Valk & Murdoch Iron Wks., Charleston, S. C.

Accountants.
The Audit Co. of New York, New York, N.Y.

Accumulators.
Bushnell Press Co., G. H., Thompsonville, Conn.
Watson-Stillman Co., New York, N. Y.
Wood. R. D., & Co., Philadelphia, Pa.

Adding Machines.
American Arithmometer Co., St. Louis, Mo.

Agent. (Manufacturers and Producers'.)
Morrison & Kindervater, Richmond, Va.
Phillips, Edward W., Baltimore, Md.

Agricultural Implements.
Farquhar Co., Ltd., A. B., York, Pa.
Hench & Dromgold, York, Pa.

Agricultural Shapes.
American Steel Hoop Co., New York, N. Y.

Air Brakes.
Standard Traction Brake Co., New York, N. Y.

Air Compressors.
Clayton Air Compressor Works, New York, N. Y.
Hardie-Tynes Fdy. & Mch. Co., Birmingham, Ala.
Ingersoll-Sergeant Drill Co., New York, N. Y
McKiernan Drill Co., New York, N. Y.
Rand Drill Co., New York, N. Y.
Smith Machine Co., H. B., Smithville, N. J.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Sullivan Machinery Co., Chicago, Ills.

Anti-Friction Metals.
Bailey-Lebby Co., Charleston, S. C.
Hiertz, Theo., & Son, St. Louis, Mo.
Humboldt Metal Works, South Somerville, N. J.
Magnolia Metal Co., New York, N. Y.
Merchant & Co., Inc., Philadelphia, Pa.
Ryan, J. J., & Co., Chicago, Ill.

Antimony.
Hiertz, Theo., & Son., St. Louis, Mo.
Magnolia Metal Co., New York., N. Y.
Ryan, J. J., & Co. Chicago, Ill.

Architects.
Bryan, A. J., & Co., Memphis, Tenn.
Makepeace, C. R., & Co., Providence, R. I.
Milburn, Frank P., Columbia, S. C.
Fraray, C. A. M., & Co., Providence, R. I.
Simpson, A. D. Birmingham, Ala.
Walter & Legare, Columbia, S. C.
Wheeler, McMichael & Co., Charlotte, N. C.

Architectural Iron Works.
American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Eureka Supply Co., Chattanooga, Tenn.
Lombard Iron Works & Supply Co., Augusta, Ga.
Lykes, John D., Birmingham, Ala.
Sanders Mfg. Co., Dalton, Ga.
Schreiber, L., & Sons Co., The, Cincinnati, O.
Virginia Bridge & Iron Co., Roanoke, Va.

Asbestos.
Johns, H. W., Mfg. Co., New York, N. Y.
Keasbey & Mattison Co., Ambler, Pa.
Southern Asbestos Mfg. Co., Richmond, Va.

Attorney's.
Corder, Edward, Spencer, W. Va.
Hanlon, Thos. F., Washington, D. C.

Babbitt Metal. [See Anti-Friction Metal.]

Bags, Rope and Twine.
American Mfg. Co., New York City.
Bailey, John T., & Co., Philadelphia, Pa.

Bagging Machinery. (Automatic.)
N. E. Automatic Weighing Mch. Co., Boston, Mass.

Bankers and Brokers.
Baker, Edgar & Co., Baltimore, Md.
Continental Trust Co., Baltimore, Md.
Hambleton & Co., Baltimore, Md.
Hornaday, J. P., Cincinnati, O.
International Trust Co., Baltimore, Md.
Magid, Louis B., & Co., New York, N. Y.
Maryland Casualty Co., Baltimore, Md.
Maryland Trust Co., Baltimore, Md.
McKee, Hugh, & Co., Wilmington, N. C.
Merchants & Farmers' Nat'l Bk., Charlotte, N. C.
Middendorf, J. Wm., & Co., Baltimore, Md.
Richmond Trust & Safe Deposit Co., Richmond, Va.
Securities Guaranty Co., Philadelphia, Pa.
Spencer Trask & Co., New York, N. Y.
Thomson, Edw. H., & Sons, Baltimore, Md.
Williams, John L., & Sons, Richmond, Va.

Bar Iron and Steel.
American Iron & Steel Mfg. Co., Lebanon Pa.
American Steel Hoop Co., New York, N. Y.

Bellows. (Molder and Blacksmith.)
Paxson Co., J. W. Philadelphia, Pa.

Belting.
Alexander Bros., Philadelphia, Pa.
American Supply Co., Providence, R. I.
Bailey-Lebby Co., Charleston, S. C.
Boston Belting Co., Boston, Mass.
Caldwell, H. W., & Son Co., Chicago, Ill.
Cameron & Barkley Co., Charleston, S. C.
Cleveland Belting & Machinery Co., Cleveland, O.
Dodge Mfg. Co., Mishawaka, Ind.
Eureka Fire Hose Co., New York, N. Y.
Fairbanks Co., Baltimore, Md.
Fayerweather & Ladew, New York, N. Y.
Freese, E. M., & Co., Galion O.
Gandy Belting Co., Baltimore, Md.
Lombard Iron Works & Supply Co., Augusta, Ga.
Main Belting Co., Philadelphia, Pa.
Meier's, Joseph, Sons, New York, N. Y.
Munson Belting Co., Charles, Pittsburg, Pa.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Pechin, T. E., Philadelphia, Pa.
Peerless Rubber Manufacturing Co., New York, N. Y.
Rhoads J. E. & Sons Wilmington Del
Rossendale-Reddaway Belting & Hose Co., Newark, N.J.
Schaefer, W. J., & Co., New York N. Y.
Schieren, Chas. A., & Co. New York, N. Y.
Shultz Belting Co., St. Louis, Mo.
Textile Mill Supply Co., Charlotte, N. C.
Williams, I. B., & Sons, Dover, N. H.

Belting. (Chain.)
Aultman Co., The, Canton, O.
Caldwell, H. W., & Son Co., Chicago, Ill.
Jeffrey Manufacturing Co., Columbus, O.
Link-Belt Engineering Co., Nicetown (Phila.), Pa.
Tate, Jones & Co., Pittsburg, Pa.

Belt Fasteners.
Thacher Belting Hook Co., Cleveland, O.
American Supply Co., Providence, R. I.

Belt Lacing.
Rhoads, J. E., & Sons, Wilmington, Del.
Shultz Belting Co., St. Louis, Mo.
Textile Mill Suplpy Co., Charlotte, N. C.
Williams, I. B., & Sons, Dover, N. H.

Belt Preserver.
Munson Belting Co., Charles, Pittsburg, Pa.
Rhoads, J. E., & Son, Wilmington, Del.
Shultz Belting Co., St. Louis, Mo.
Thacher Belting Hook Co., Cleveland, O.

Blower. (Argand Steam.)
McClave, Brooks & Co., Scranton, Pa.

Blowers for Cupolas.
Asher, A., New York, N. Y.
Paxson Co., J. W., Philadelphia, Pa.
Sterling Blower & Pipe Mfg. Co., Hartford, Conn

Blowers. (Pressure.)
Allington & Curtis Mfg. Co., Saginaw, E. S. Mich.
American Blower Co. Detroit, Mich.
Asher, A., New York, N. Y.
Boston Blower Co., Hyde Park, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Cornell, J. B. & J. M., New York, N. Y.
Paxson Co., J. W., Philadelphia, Pa.
Sturtevant Co., B. F., Boston, Mass.

Blowers and Exhaust Fans.
American Blower Co., Detroit, Mich.
Allington & Curtis Mfg. Co., Saginaw, E. S. Mich.
Boston Blower Co., Hyde Park, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Cornell, J. B. & J. M., New York, N. Y.
Crosby St. Gage & Valve Co., Boston, Mass.
Exeter Machine Works, Exeter, N. H.
Southwark Foundry & Machine Co., Philadelphia, Pa'
Sterling Blower & Pipe Mfg. Co., Hartford, Conn.
Sturtevant Co., B. F., Boston, Mass.

Boiler Cleaner.
Leonard & McCoy, New York, N. Y.

Boiler Compounds.
International Boiler Compound Co., Chicago, Ill.

Boilers.
Abendroth & Root Mfg. Co., New York, N. Y.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Atlas Engine Works, Indianapolis, Ind.
Aultman Co., The, Canton, Ohio.
Babcock & Wilcox Co., New York, N. Y.
Birmingham Boiler Works, Birmingham, Ala.
Brownell & Co., The, Dayton, O.
Bunnell Machinery Co., Chicago, Ill.
Cameron & Barkley Co., Charleston, S. C.
Chicago House Wrecking Co., Chicago, Ill.
Clarendon Boiler Works, N. Clarendon, Pa.
Codd Co., E. J., Baltimore, Md.
DePuy, M., New York, N. Y.
DuBois Iron Works, DuBois, Pa.
Etting, Edw. J., Philadelphia, Pa.
Farquhar Co., Ltd., A. B., York, Pa.
Frick Co., Waynesboro, Pa.
Gem City Boiler Co., Dayton, O.
Gibbes, W. H., & Co., Columbia, S. C.
Girard Boiler & Mfg. Co., Girard, O.
Hammond Iron Works, Warren, Pa.
Harrison Safety Boiler Works, Philadelphia, Pa.
Hartley Boiler Works, Montgomery, Ala.
Hazleton Boiler Co., New York, N. Y.
Heine Safety Boiler Co., St. Louis, Mo.
International Power Co., Providence, R. I.
Keeler Co., E., Williamsport, Pa.
Leffel, James, & Co., Springfield, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Morrison & Kindervater, Richmond, Va.
Murray Iron Works Co., Burlington, Iowa.
Petroleum Iron Works Co., Washington, Pa.
Phillips, Edward W., Baltimore, Md.
Phoenix Iron Works Co., Meadville, Pa.
Scaife, Wm. B., & Sons, Pittsbug, Pa.
Schofields, J. S., Sons Co., Macon, Ga.
Smith Co., S. Morgan, York, Pa.
Smith-Courtney Co., Richmond, Va.
Southern Eng. & Boiler Works, Jackson, Tenn.
St. Louis Iron & Machine Works, St. Louis, Mo.
Struthers, Wells & Co., Ltd., Warren, Pa.
Union Iron Works Co., Selma, Ala.
Valk & Murdoch Iron Works, Charleston, S. C.
Wetherill, Robert, & Co., Chester, Pa.
York Mfg. Co., York, Pa.

Boilers. (Marine.)
Marine Iron Works, Chicago, Ill.

Bolts, Rivets and Nuts.
American Iron & Steel Mfg. Co., Lebanon, Pa.
Dyson, Jos., & Son, Cleveland, Ohio.
Miles, Franklin S., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.
Hoopes & Townsend Co., Philadelphia, Pa.

Bottling Outfits.
Vilter Mfg. Co., Milwaukee, Wis.

Brass Foundry Supplies.
Paxson Co. J. W., Philadelphia, Pa.

Brass Goods.
Bailey-Lebby Co., Charleston, S. C.
Besley, Chas. H., & Co., Chicago, Ills.
Buckeye Iron & Brass Works, Dayton, O.
General Fire Extinguisher Co., Providence, R. I.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Lunkenheimer Co., Cincinnati, O.
Merchant & Co., Inc., Philadelphia Pa.

Breaker Teeth and Links.
Wilcox Mfg Co., D., Mechanicsburg Pa.

Brewers Machinery.
Vilter Mfg. Co., Milwaukee, Wis.

Brick.
Powhattan Clay Mfg. Co., Richmond, Va.
Reese-Hammond Fire Brick Co., Bolivar, Pa.

Brick and Clayworking Machinery and Supplies.
Bushong, M. M., Phœnixville, Pa.
Carnell, George, Philadelphia, Pa.
Fernholtz Brick Machinery Co., The, St. Louis, Mo.
Freese, E. M. & Co., Galion, O.
Hensley, J. W., Indianapolis, Ind.
Steele, J. L., & Sons, Statesville, N. C.
St. Louis Iron & Machine Works, St. Louis, Mo.

Brick Kilns.
Bushong, M. M., Phœnixville, Pa.

Bridges.
American Bridge Co., New York, N. Y.
Columbia Bridge Co., Pittsburg, Pa.
Scaife, Wm. B. & Sons, Pittsburg, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.

Brushes. (Mill.)
Felton, S. A., & Son Co., Manchester, N. H.

Buckets. (Ore.)
Clark Co., The W. J., Salem, O.
Dodge Mfg. Co., Mishawaka, Ind.
Link-Belt Engineering Co., Nicetown, Phila.
Stuebner Iron Works, G. L., Long Island City, N. Y.

Building Timbers.
Hallam, W. W., Macon, Ga.

Burlaps.
Bailey, John T., & Co., Philadelphia, Pa.

Cableways. (Wire Rope.)
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Exeter Machine Works, Pittston, Pa.
Leschen, A., & Sons Rope Co., St. Louis, Mo.
Lidgerwood Mfg. Co., New York, N. Y.
Macomer & Whyte Rope Co., Chicago, Ill.
Roebling's Sons Co., John A., Trenton, N. J.
Trenton Iron Co., Trenton, N. J.
United Teipherage Co., New York, N. Y.

Calcium Chloride.
Carbondale Chemical Co., Carbondale, Pa.

Canning Secrets. (Book.)
Murphy, John & Co., Baltimore, Md.

Canmakers' Machinery.
Niagara Machine & Tool Works, Buffalo, N. Y.

Capstans. (Hand and Steam.)
American Ship Windlass Co., Providence, R. I.

Carbons. (For Diamond Drills.
Lexow, Theo., New York, N. Y.

Card Clothing.
American Supply Co., Providence, R. I.

Carriage and Wagon Hardware.
Wilcox Mfg. Co., D., Mechanicsburg, Pa.

Carriages.
Babcock Co., H. H., Watertown, N. Y.

Cars. (Mine, Dump and Logging.)
Austin Manufacturing Co., F. C., Harvey, Ill.
Birmingham Boiler Works, Birmingham, Ala
Bunnell Machinery Co., Chicago, Ill.
Ingoldsby Automatic Car Co., St. Louis, Mo.
Jackson Manufacturing Co., Harrisburg, Pa.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Males Co., The, Cincinnatti, O.
Peacock Iron Works, Selma, Ala.
Union Iron Works Co., Selma, Ala.

Lowest Freight to the South.

VIRGINIA PORTLAND CEMENT CO. — NEW YORK OFFICE 81 FULTON ST. — PORTLAND — TRADE — OLD DOMINION — MARK — CEMENT — WM. G. HARTRANFT CEMENT CO. PHILADELPHIA — SOLE SELLING AGENTS — CRAIGSVILLE, VA.

Quality Guaranteed.

WM. G. HARTRANFT CEMENT CO.,
Sole Selling Agent,
Real Estate Trust Bld'g, PHILADELPHIA.

Carolina Portland Cement Co.
CHARLESTON, S. C.
Sole Selling Agents for North and South Carolina, Florida and Georgia. Lime, Rosendale Cement, Louisville Cement, etc.
Full stocks of Portland Cement, Rosendale Cement and Plaster at Norfolk, Wilmington, Charleston and Savannah.

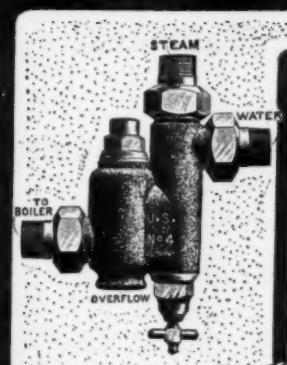
"Quick-as-Wink" Couplings

are what you must have on your Compressed Air Hose. The Common Screw Couplings are too slow.

The W. J. Clark Co.
Salem, Ohio.

Cross Oil Filters,
The kind that saves you 50 per cent.
THE BURT MFG. CO.
AKRON, OHIO.

NO FLIES
IN A HOUSE WITH OUR
WIRE SCREENS
SPECIALTY:
Screening Houses to Order.
THE E. T. BURROWES CO., Portland, Me.
Phila. Office, 707 Real Estate Trust Bldg.



Phosphor Bronze and Brains.
All the jets in a
U. S. Automatic Injector
are made of phosphor bronze. Every detail of its construction is as near perfect as good material and good workmanship can make them.
It meets every condition satisfactorily. Has more actual, practical strong points than any other Injector on the market.
Our "Engineers' Red Book" proves it, besides containing much valuable engineering information. Mailed Free.

American Injector Co.
DETROIT, MICH.

L. L. CLINE ADV. DET.

NONPAREIL ANTI-FRICTION METAL

Nonpareil Anti-Friction Metal
Best Anti-Friction Metal for all machinery bearings. For high speed and heavy crushing weight it has no equal.
THEO. HIERTZ & SON, Sole Manufacturers,
10th and Poepping Sts., ST. LOUIS, MO.
Manufacturers all grades Babbitt Metals, Solder, Bar Tin, Bar Lead, Lead Car Seals, Pig Tin, Pig Lead, Antimony, Copper, Spelter, etc.

AIR COMPRESSORS For every application of Compressed Air Power.
Complete Catalogue upon application.
CLAYTON AIR COMPRESSOR WORKS, 26 Cortlandt Street, NEW YORK.

A Little Booklet

ABOUT HEINTZ

for the business man who looks after the leaks. Just a common-sense Heintz proposition — the wonderful steam-saver that's changed the old slip-shod methods of using steam.

Tells how the Heintz Steam Trap increases power and heating capacity a third; how the cost of an extra boiler may be saved; tells how to use less coal, and tells why no steam user—particularly you—can afford to use the old forms of traps. Won't you ask for a copy of Vol. J ? It's free.

We'll send a Heintz on approval if you'll let us—and there won't be any obligation to buy.

WM. S. HAINES CO.
18th and Hamilton Sts., Philadelphia, Pa.

The Heintz Steam Trap

THE SAFETY Car Heating & Lighting Co.

160 Broadway, New York.

CAR LIGHTING

By the Pintsch System.

CAR HEATING

By Steam Jacket System, Hot Water Circulation, Return and Direct Steam Systems.

AUTOMATIC STEAM COUPLERS.

TABOR STOP MOTION COUNTER

You don't have to hunt for centre in shaft and then for your watch while balancing on a ladder.

Send $1 for Sample.

Liberal Discount to the trade. Ask your dealer for it.

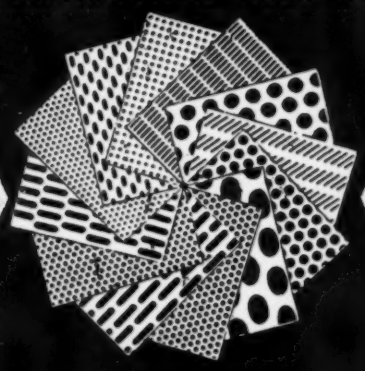
Builders of Foundry Molding Machines.

THE TABOR MFG. CO.
18th and Hamilton Sts. Philadelphia, Pa

Perforated Metals

Steel, Iron, Copper, Zinc, Brass, Tin and All Other Metals

PERFORATED AS REQUIRED.



FOR

Cotton, Woolen, Paper and Pulp Mills, Rice, Flour and Cotton Seed Oil Mills, Sugar Houses, Filter Presses, Mining and Grain Cleaning Machinery, Stone, Coal and Ore Screens, Brick and Tile Works, Filters, Gas and Water Works, Etc. Standard Sizes Perforated Tin and Brass always in Stock.

The HARRINGTON & KING PERFORATING CO.

EASTERN OFFICE, 284 PEARL ST., N. Y.

Main Office & Works, 234 N. Union St., CHICAGO, ILL.

HENRY G. MORRIS,

408 Philadelphia Bourse, PHILADELPHIA, PA., U. S. A.

Cable Address: "GURNEY."

Engineer, Founder, Machinist.

BUILDERS OF

Improved Centrifugals, Vacuum Pans,
Single and Multiple Effect Diffusion Batteries,
Sugar Cane Mills, Shredders and Crushers,
Bagasse Burners, Beet Sugar Apparatus, etc.

SOUTHERN OFFICE OF HENRY G. MORRIS,

M. D. BRINGIER, Manager, 2014 Canal St., P. O. Box 1825, **New Orleans, La.,** representing the above line, and also Southern Representatives of

THE MURRAY IRON WORKS CO., Corliss, Automatic Cut-off, Hoisting, Marine and various types of Slide-Valve Engines, Ice Machines of all sizes, and Scotch Marine Boilers for high pressure marine service.

THE TUDOR BOILER MFG. CO., Improved Babcock & Wilcox Type Water-Tube Boilers, which are the highest achievement of Boiler Engineering. Lynn Safety Vertical Water-Tube Boilers.

RETURN TUBULAR AND FLUE BOILERS of every description.

PRIESTMAN OIL ENGINES reliable, safe and economical.

HIGH-DUTY PUMPING AND AIR COMPRESSING MACHINERY.

U. S. FUEL OIL EQUIPMENT CO.'S OIL BURNERS.

LOCOMOTIVES for all requirements.

SUGAR APPARATUS AND POWER PLANT MACHINERY, of every description.

Write for estimates or allow us to call on you.

Covert Pants STRETCHER

Before. After.

The Covert "Pants Stretcher" restores the pantaloons to their original shape and length.

It removes all WRINKLES and BAGGING AT THE KNEES, and giving them the appearance of having just left the tailor's hands.

It also holds the pants in a convenient position for brushing and cleaning.

The stretchers cannot get out of order, and can be adjusted in the pants in a few seconds.

It being applied inside the pants, it obviates all objections prominent in other stretchers.

It is made of steel wire, and being in sections, can be packed in a valise when traveling.

Sold by the Trade, or Sample pair sent by mail to any address, free of postage, on receipt of $1.00.

MANUFACTURED ONLY BY

COVERT MFG. CO., West Troy, N. Y.

"The Standard" Scales

FOR

Cottonseed Oil Mills, Cotton Gins, Railroads, Mines, Mills, Warehouses AND ALL PURPOSES.

Used by the U. S. Government, Leading Railroads and Manufacturers.

THE STANDARD SCALE & SUPPLY CO, Limited, Manufacturers,
PITTSBURGH, PA.

Conveying, Elevating and Power Transmitting Machinery

A COMPLETE LINE OF THE BEST.

Caldwell Helicoid Conveyor!

CALDWELL HELICOID

The only perfect spiral conveyor with continuous flight—no laps or rivets.

Seamless Steel Elevator Buckets, Elevator Boots, Rope Transmission Machinery, Sprocket Wheels, Link Belting, Shafting, Belting, Hangers, Pulleys, Gears, Carpullers, Automatic Power Grain Shovels, Wood Split Pulleys, Wire Cloth, Perforated Metal.

Complete Equipments for handling materials of all kinds.

H. W. CALDWELL & SON COMPANY,

Western Avenue, 17th to 18th Streets, CHICAGO, ILL.

Our New Catalogue No. 26 (440 Pages, Cloth Bound,) will be Sent Upon Request.

SOUTH-EASTERN SALES AND ENGINEERING OFFICE, 411 Prudential Building, Atlanta, Ga., W. C. CONANT, Manager.
SOUTH-WESTERN SALES AND ENGINEERING OFFICE, 206 Trust Building, Dallas, Texas. J. C. VAN ARSDELL, Manager.

Classified Index of Advertisers.

For Alphabetical Index See Page 29

Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]

Car Couplers and Knuckles.
Chester Steel Castings Co., Philadelphia, Pa.
Latrobe Steel & Coupler Co., Philadelphia, Pa.
Safety Car Heating & Lighting Co., New York, N. Y.

Car Lighting and Heating.
Safety Car Heating & Lighting Co., New York, N. Y

Car Seals. (Lead.)
Hiertz, Theo., & Son, St. Louis, Mo.

Car Wheels, Axles and Trucks.
George Fdry. & Mch. Works, Rome, Ga.
Union Iron Works Co., Selma, Ala.
Peacock Iron Works, Selma, Ala.

Casters and Caster Wheels.
Standard Caster & Wheel Co., New York, N. Y.

Castings. (Brass and Bronze.)
George Foundry & Machine Works, Rome, Ga.
Lunkenheimer Co., Cincinnati, O.
Ryan, J. J., & Co., Chicago, Ill.

Castings. (Aluminum.)
Ryan, J. J., & Co., Chicago, Ill.

Castings. (Iron.)
Dimmick Pipe Co., Birmingham, Ala.
Dodge Mfg. Co., Mishawaka, Ind.
George Foundry & Machine Works, Rome, Ga
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Lombard Iron Works & Supply Co., Augusta, Ga.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Maryland Fdry. & Mch. Co., Baltimore, Md.
Ross-Meehan Fdry. Co., Chattanooga, Tenn.
Sanders Mfg. Co., Dalton, Ga.
Smith Co., S. Morgan, York, Pa.
Valley Iron Works, Williamsport, Pa.
Westbrooks, J. B. Fdry. & Mch. Co., Danville, Va.
Wood, R. D., & Co., Philadelphia, Pa.

Castings. (Malleable Iron and Steel.)
Acme Steel & Malleable Iron Works, Buffalo, N. Y.
Chester Steel Castings Co., Chester, Pa.
Hay-Budden Mfg. Co., Brooklyn, N. Y.
Latrobe Steel Co., Philadelphia, Pa.
Norway Iron & Steel Co., York, Pa.
Ross-Meehan Fdry. Co., Chattanooga, Tenn.
York Mfg. Co., York, Pa.

Cement.
American Cement Co., Philadelphia, Pa.
Alpha Portland Cement Co., Washington, D. C.
Bird, W. M., & Co., Charleston, S. C.
Bonneville Portland Cement Co., Philadelphia, Pa.
Carolina Port. Cement Co., Charleston, S. C.
French, Samuel H., & Co., Philadelphia, Pa.
Garden City Sand Co., Chicago, Ill.
Gilbert, C. M., & Co., Savannah, Ga.
Hartranft Cement Co., Wm. G., Philadelphia, Pa.
Kelley Island Lime & Transport Co., Cleveland, O.
Lawrence Cement Co., The, New York, N. Y.
Maryland Cement Co., Baltimore, Md.
Mobile Coal Co., Mobile, Ala.
Southeastern Lime & C. Co., Charleston, S. C.
Virginia Portland Cement Co., Philadelphia, Pa.
Warner Co., Chas., Wilmington, Del.

Centrifugals. (Sugar, etc.)
Morris, Henry G., Philadelphia, Pa.

Chain Hoists.
Speidel, J. G., Reading, Pa.

Chains.
Jeffrey Mfg. Co., The, Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
N. J. Foundry & Machine Co., Plainfield, N. J.

Charcoal. (Filtering.)
Obermayer Co., S., Cincinnati, O.

Chemicals.
Carbondale Chemical Co., Carbondale, Pa.

Chemists.
Froehling, Dr. Henry, Richmond, Va.
Pratt Laboratory, N. P., Atlanta, Ga.

Chloride of Calcium.
Carbondale Chemical Co., Carbondale, Pa.

Chucks.
Besly, Chas. H., & Co., Chicago, Ill.
Morse Twist Drill & Machine Co., New Bedford, Mass
Skinner Chuck Co., New Britain, Conn.
Whiton Machine Co., D. E., New London, Conn.

Chucks. (Spinning.)
Hay-Budden Mfg. Co., Brooklyn, N. Y.

Clocks. (Watchman's and Town.)
Besly, Chas. H., & Co., Chicago, Ill.
Nanz, S., & Co., New York, N. Y.
Textile, Mill & Supply Co., Charlotte, N. C.

Clamps.
Besly, Chas. H., & Co., Chicago, Ill.

Coal.
Alabama Con. Coal & Iron Co., Birmingham, Ala.
Castner, Curran & Bullitt, Philadelphia, Pa.
Crooked Fork Coal & Coke Co., Petros, Tenn.
Davis Coal & Coke Co., Philadelphia, Pa.
Jacoby, W. F., & Co., Philadelphia, Pa.
Mobile Coal Co., Mobile, Ala.

Coal-Handling Machinery.
Aultman Co., Canton, O.
Exeter Machine Works, Pittston, Pa.
Hunt, Co., C. W., West New Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Robinson Machine Co., Monongahela, Pa.
Stuebner Iron Works, G. L., Long Island City, N. Y.

Coal Tar Products.
Barrett Mfg. Co., Philadelphia, Pa.

Coke.
Alabama Con. Coal & Iron Co., Birmingham, Ala.
Crooked Fork Coal & Coke Co., Petros, Tenn.
Davis Coal & Coke Co., Philadelphia, Pa.
Jacoby, W. F., & Co., Philadelphia, Pa.

Commutators. (Bars and Segments.)
Tower-Binford Electric & Mfg. Co., Richmond, Va.

Compressed Air Locomotives. (See Locomotive Builders.)

Concentrating Plants.
Cresson Co., Geo. V., New York, N. Y.
General Concentrates Co., New York, N. Y.

Concrete Mixers.
New Jersey Foundry & Machine Co., Plainfield, N. J.
Ransome & Smith Co., Brooklyn, N. Y.

Contractors. (Paving, etc.)
Robinson Contracting Co., Geo. A., Mobile, Ala.

Contractors. (Railway.)
Smethurst & Allen, Philadelphia, Pa.

Contractors and Builders.
Chapman, Wm. A., & Co., Providence, R. I.
Speir, W. E., Washington, D. C.

Contractors' Machinery and Supplies. [See Hoisting Machinery.]
Aultman Co., The, Canton, O.
Austin Manufacturing Co., F. C., Harvey, Ill.
Bunnell Machinery Co., Chicago, Ill.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Males Co., The, Cincinnati, O.
Marion Steam Shovel Co., Marion, O.
Peacock Iron Works, Selma, Ala.
Schaefer, W. J., & Co., New York, N. Y.

Conveying Machinery.
Aultman Co., The, Canton, Ohio.
Caldwell, H. W., & Son Co., Chicago, Ill.
Cresson Co., Geo. V., New York, N. Y.
Dodge Mfg. Co., Mishawaka, Ind.
Hunt Co., C. W., West New Brighton, N. Y.
Jeffrey Mfg. Co., The, Columbus, O.
Leschen, A., & Sons Rope Co., St. Louis, Mo.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Engineering Co., Nicetown (Phila.), Pa.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
N. J. Foundry & Machine Co., Plainfield, N. J.
Robinson Machine Co., Monongahela, Pa.
Sterling Blower & Pipe Mfg. Co., Hartford, Conn.
Tate, Jones & Co., Pittsburg, Pa.

Copper.
Hiertz, Theo. & Son, St. Louis, Mo.
Magnolia Metal Co., New York, N. Y.
Merchant & Co., Inc., Philadelphia, Pa
Ryan, J. J., & Co., Chicago, Ill

Coppersmiths.
Birmingham Boiler Works, Birmingham, Ala.

Core Ovens.
Millet Core Oven Co., Brightwood, Mass.

Cordage.
American Mfg. Co., New York, N. Y.

Corn-Mill Machinery.
Nordyke & Marmon Co., Indianapolis, Ind.
Sprout, Waldron & Co., Muncy, Pa.

Cotton. (Commission Merchants.)
Jacobs, M. R., New York, N. Y.

Cotton Goods. (Commission Merchants.)
Jacobs, M. R., New York, N. Y.

Cotton Yarns. (Commission Merchants.)
Blythe, Richard R., Philadelphia, Pa.
Buckingham & Paulson, Philadelphia, Pa.

Cotton-Gin Machinery.
Brown Cotton Gin Co., New London, Conn.
Carver Cotton Gin Co., E. Bridgewater, Mass.
Lummus', F. H., Sons Co., Columbus, Ga.
Valk & Murdoch Iron Works, Charleston, S. C.
Van Winkle Gin & Machine Works, E., Atlanta, Ga.

Cotton Ties. (Steel.)
American Steel Hoop Co., New York, N. Y.

Cotton-Mill Machinery & Supplies.
American Supply Co., Providence R. I.
Atherton Machine Co., A. T., Pawtucket, R. I.
Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.
Dodge Mfg. Co., Mishawaka, Ind.
Draper Co., Hopedale, Mass.
Fairmount Machine Co., Philadelphia, Pa.
Kilburn, Lincoln & Co., Fall River, Mass.
Lowell Machine Shop, Boston, Mass.
Mason Machine Works, Taunton, Mass.
Robbins, O. A., Charlotte, N. C.
Textile Mill Supply Co., Charlotte, N. C.
Washburn, A. H., Charlotte, N. C.
Whitinsville Spin. Ring Co., Whitinsville, Mass.

Cottonseed-Oil Machinery.
Alsing Co., J. R., Inc., Brooklyn, N.Y.
Buckeye Iron & Brass Works, Dayton, Ohio.
Bushnell Press Co., G. H., Thompsonville, Ct.
Cardwell Machine Co., Richmond, Va.
Carver Cotton Gin Co., E. Bridgewater, Mass.
Columbus Machinery Co., The, Columbus, Miss.
Foos Mfg. Co., Springfield, O.
Sprout, Waldron & Co., Muncy, Pa.
Stillwell-Bierce & Smith-Vaile Co., Dayton, Ohio.
Van Winkle Gin & Machine Works, E., Atlanta, Ga.

Cottonseed Products.
American Cotton Oil Co., New York, N. Y.
Cotton Oil Fibre Co., Philadelphia, Pa.

Counters. (Stop Motion.)
Tabor Mfg. Co., The, Philadelphia, Pa.

Covering. (Pipe and Boiler.)
Johns Mfg. Co., H. W., New York, N. Y.
Keasbey & Mattison Co., Ambler, Pa.
Southern Asbestos Mfg Co., Richmond, Va.

Coverers. (Rollers and Clearers.)
American Supply Co., Providence, R. I.

Cranes. (Traveling, Hand, Power, Hydraulic.)
Case Manufacturing Co., The, Columbus, O.
Niles-Bement-Pond Co., Philadelphia, Pa.

Crankshafts.
Chester Steel Castings Co., Philadelphia, Pa.

Creosoting Works.
New Orleans Wood Preserving Wks., New Orleans, La.
West Pascagoula Creosote Wks., West Pascagoula, Miss.

Cross Arms and Pins.
New Orleans Wood Preserving Wks., New Orleans, La.
Tennessee Lumber Co., Lewisburg, Tenn.

Cross Ties.
New Orleans Wood Preserving Wks., New Orleans, La.

Crushing and Pulverizing Mchy.
Alsing Co., J. R., Inc., Brooklyn, N. Y.
Aultman Co., The, Canton, Ohio.
Austin Manufacturing Co., F. C., Harvey, Ill.
Blanton, Jr., E. A., Philadelphia, Pa.
Bradley Pulverizer Co., Boston, Mass.
Brown Co., A. & F., New York, N. Y.
Cresson Co., Geo. V., New York, N. Y.
Foos Mfg. Co., Springfield, Ohio.
McLanahan-Stone Machine, Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Robinson Machine Co., Monongahela, Pa.
Sackett, A. J., Baltimore, Md.
Smidth, F. L., & Co., New York, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
Sturtevant Mill Co., Boston, Mass.
Walker & Elliott, Wilmington, Del.
West Pulverizing Machine Co., New York, N. Y

Crushers. (Corn and Cob.)
Brown Co., A. & F., New York, N. Y.
Foos Mfg. Co., The, Springfield, Ohio.
Sprout, Waldron & Co., Muncy, Pa.
Wolf Co., The, Chambersburg, Pa.

Cupola Furnaces.
Obermayer, S., Co., Cincinnati, O.
Paxson Co., J. W., Philadelphia, Pa.

Cutterheads. (Woodworking.)
Shimer, Samuel J., & Sons, Milton, Pa.

Dado Heads.
Huther Bros., Rochester, N. Y.

Dam Builders—Hydraulic Surveyors.
Beardsley Gravity Dam & Con. Co., Elkhart, Ind.

Designers and Builders of Steel Buildings.
Schreiber, The L., & Sons Co., Cincinnati, O.

Dies for Sheet-Metal Workers.
Besly, Chas. H., & Co., Chicago, Ill.
Fairbanks Co., Baltimore, Md.
Leffler, Chas., & Co., Brooklyn, N. Y.
Niagara Machine & Tool Works, Buffalo, N. Y.

Die Forgings and Castings.
Hay-Budden Mfg. Co., Brooklyn, N. Y.

Draughtsmen's, Engineer's Supplies.
Weber, F., & Co., Philadelphia, Pa.

Dredges and Excavators.
Austin Mfg. Co., F. C., Harvey, Ill.
Bunnell Machinery Co., Chicago, Ill.
Hardie-Tynes Fdy. & Mch. Co., Birmingham, Ala.
Rogers, John M., Boat, Gauge & Drill Works., The, Gloucester City, N. J.
Marion Steam Shovel Co., Marion, O.

Drills. (Prospecting.)
American Diamond Rock Drill Co., New York, N. Y.
Crippen, H. D., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

Drills. (Rock and Mining.)
American Diamond Rock Drill Co., New York, N. Y.
Crippen, H. D., New York, N. Y.
Howells Mining Drill Co., Plymouth, Pa.
Ingersoll-Sergeant Drill Co., New York, N. Y.
McKiernan Drill Co., New York, N. Y.
Rand Drill Co., New York, N. Y.
Rogers, John M., Boat, Gauge & Drill Works., The, Gloucester City, N. J.
Sullivan Machinery Co., Chicago, Ill.

Drills. (Twist.)
American Tool Works Co., Cincinnati, O.
Barnes Co., W. F. & John, Rockford, Ill.
Morse Twist Drill & Machine Co., New Bedford, Mass

Drilling Machines.
American Tool Works, Cincinnati, O.
Barnes Co., W. F. & John, Rockford, Ill.
Bickford Drill & Tool Co., The, Cincinnati, O.

Drill Grinders.
Wilmarth & Morman Co., Grand Rapids, Mich.

American Steel Hoop Company.

Battery Park Building, New York.

MANUFACTURER OF

BAR IRON

Common, Refined and "BB" Iron,
Flats, Rounds, Squares, Ovals, &c.
Chain and Rivet Iron. Bolt and Nut Iron.
"STAR" and "EAGLE" Horse Shoe Iron.
Skelp Iron, &c.

BAR STEEL

Bessemer and Open Hearth,
Flats, Rounds, Squares, Ovals, Angles, Channels,
Special Shapes. Round Edge Steel Tire.
Agricultural Shapes, Light Rails, &c.

BANDS AND HOOPS

Bessemer and Open Hearth,
All widths and gauges. Steel Skelp, Hame Back,
Tongue Cap, &c.

COTTON TIES.

DISTRICT SALES OFFICES:

Atlanta, Ga., Prudential Building.
Boston, Mass., 8 Oliver Street.
Cleveland, O., Williamson Building.
Cincinnati, O., Union Trust Co. Bldg.
Chicago, Ill., Marquette Building.
Montreal Quebec, Temple Building.
New York, Battery Park Building.
Pittsburg, Pa., Empire Building.
Philadelphia, Pa., Real Estate Trust Bldg.
St. Paul, Minn., Endicott Building.
St. Louis, Mo., Security Building.
San Francisco, Cal. 23 Davis Street.
London, England, 78 Gracechurch Street.

"NORTON"

GOLD MEDAL,
PARIS, 1900.

NORTON
EMERY WHEEL CO.

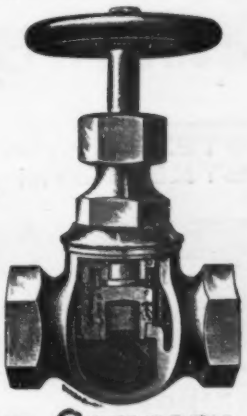
WORCESTER, MASS.

CHICAGO STORE—25 S. Canal St.
CAREY MCHY. & SUPPLY CO., Agts., Balto., Md.

Contractors' Supplies, Anything, from a Wheelbarrow to a Shovel, Prices right—so are our goods.
W. J. SCHAEFER & CO., 96 CENTER STREET, NEW YORK.

Leak Proof.

This Crosby
Spring-Seat and Angle
Globe Valve



we put out under a guarantee that it will not leak.
Every valve under hydraulic pressure of more than 400 pounds to the square inch before it leaves our factory.

THE VALVE IS BUILT TO LAST.

You can renew all working parts without removing the valve from the piping.

Crosby Steam Gage & Valve Company,
OFFICE AND WORKS, BOSTON, MASS.
93-97 Oliver Street, Boston, Mass.
21 and 23 Lake Street, Chicago.
78 John Street, New York.
147 Queen Victoria Street, London.

ARCHITECTS, CIVIL ENGINEERS, MINING ENGINEERS, CHEMISTS, Etc.

THORBURN REID.
136 Liberty St., New York.
CONSULTING ENGINEER—Electrical, Hydraulic, Refrigerating.

FRANK P. MILBURN
ARCHITECT
CHARLOTTE, N.C.
COLUMBIA, S.C.

LOCKWOOD, GREENE & CO.
MILL
Architects and Engineers,
Entire Sixth Floor,
93 Federal Street, BOSTON.

WHEELER, McMICHAEL & Co
ARCHITECTS,
CHARLOTTE, N.C.

WEATHERFORD & HILDEBRAND,
Civil and Mechanical Engineers.
Designing and superintending erection of Water Works, Electric Light Plants, Sewers and general Municipal Work a specialty.
Patent Experts and Attorneys
U. S. and Foreign Patents
Offices, 43½ Madison St., Memphis, Tenn.

$10,000 IN BANK will earn less than a dollar a day interest. Two hours study daily in spare time has enabled students to fit themselves for positions paying $5 a day. Circulars free.
The International Correspondence Schools, Box 960, Scranton, Pa.

W. B. SMITH WHALEY & CO.
Mill Engineers and Architects,
OFFICES:—1328 Main Street, Columbia, S. C. and 908 Tremont Building, Boston, Mass.

C. R. MAKEPEACE & CO.
Architects and Mill Engineers.
PROVIDENCE, R. I. Plans, Specifications and Estimates furnished for Cotton & Woolen Mills.

C. A. M. PRARAY & CO.
Mill Architects and Engineers,
PROVIDENCE, R. I.

WALTER & LEGARE
ARCHITECTS
COLUMBIA, S.C.

BESSEMER and OPEN HEARTH
Steel Works,
Blast Furnace Construction.
WALTER KENNEDY, Engineer,
Bijou Bldg., 611 Penn Ave., Pittsburg, Pa.

PRATT & BOLTWOOD,
Consulting Mining Engineers and Chemists,
CHAPEL HILL, N. C. AND 139 ORANGE ST., NEW HAVEN, CONN.

JAMES P. WITHEROW,
Consulting and Contracting
ENGINEER,
Park Bldg., PITTSBURG, PA.
Blast Furnaces, Whitewell and other types of Fire Brick Stoves, Bessemer and Open Hearth Steel Works, Rolling Mills, etc.
☞ Special Attention given to Expert Reports, both for this country and Europe.

WM. M. GIVEN,
Civil and Mining Engineer.
Railroads Surveyed and Constructed, Mineral Properties Examined, Reported Upon and Developed.
Office Room, 402 Chalifoux Bld'g, Birmingham, Ala.

WM. A. CHAPMAN & CO.
Mill Builders
Main Office:
PROVIDENCE, R. I.

W. E. SPEIR,
Contractor and Builder,
Brick, Stone, Wood, Iron and Steel Construction.
Office, the Bliss Bldg., 35, 37 & 39 B. St. N. W.
WASHINGTON, D. C.

FRANK LEDERLE,
Mechanical Engineer,
Plans and specifications for Heating, Ventilation; Steam, Electric and Hydraulic Powers.
407 GOULD BUILDING, ATLANTA, GA.

Grinnell Sprinklers
GENERAL FIRE EXTINGUISHER COMPANY,
Executive Offices: Providence, R. I.
At Our New
Charlotte Plant
Charlotte, N. C.
We carry the largest and best stock in the South of
Pipe, Fittings, Valves, Steam and Water Supplies.
Pipe from ⅛ inch to 12 inches cut to measure.
Orders executed promptly at lowest prices.
J. W. CONWAY,
Manager Southern Department.

N. P. PRATT LABORATORY,
Fitten Building, ATLANTA, GA.
Assays and analyses of all natural and artificial products. Chemical and mining engineering.

DR. HENRY FROEHLING,
Analytical and Consulting Chemist,
17 South 12th Street,
RICHMOND, VA.
Analyses and assays of ores of every kind, iron, steel and other metals, coal and coke, clays, marls and limestone, phosphates and fertilizers, mineral waters, waters for drinking and for boiler use, oils, commercial products, etc.
Estimates promptly furnished. Geological and chemical investigation of mineral properties of the South.

HENRY ADAMS, M. E.
Consulting Engineer,
Mem. Am. Soc. Mechanical Eng's.
Mem. Am. Soc. Ht'g and Ven. Eng's.
Heating and Ventilation. Elevators, Sanitation, Steam, Power and Electric Lighting Plants for Private and Public Buildings.
1229-1233 Calvert Bldg., BALTIMORE, MD.

NATHANIEL V. PERRY,
Mechanical and Mill Engineer,
Mill Construction and Equipment, Machinery Designing and Inventions. Power and Lighting Plants.
417-418 Prudential Bldg, Atlanta, Ga.

EDWARD E. ERIKSON,
ENGINEER AND CONTRACTOR,
BUILDS EVERY DESCRIPTION OF
FURNACES AND THE BEST GAS PRODUCER.
Garrison Bldg., Pittsburg, Pa.

THE HUTTON ENGINEERING CO.
LEXINGTON, VA.
Consulting and Contracting
Electrical and Mechanical Engineers.
Central Stations, Electric Railways, Steam and Power Plants.

COLLIER & BROWN
Electrical & Mechanical Engineers.
Engineering, Designing and Supervising of Steam, Electric and Hydraulic Plants.
Cotton Mill Construction a Specialty.
1112 English-American Bldg. ATLANTA, GA.

M. W. McRAE,
Consulting Engineer,
Plans, Specifications and Supervision of Acid Plants, Fertilizer Factories and Oil Mills. Outputs guaranteed.
233 Equitable Bldg., Atlanta, Ga.

ALBER & BYRNE, Members Eng. Assn. South.
Civil, Mechanical and Consulting Engineers.
Make surveys, plans and specifications for railroads and bridges, water powers and cotton mills, city water works, electric light plants and sewerage, subdivisions of property, surveys and reports on mineral lands.
Map of Birmingham and vicinity for sale.
1909½ 1st Ave., Birmingham, Ala.

Bell 1023. 'PHONES Gordon 447.
Hughes Specialty Well Drilling Co.
Artesian Well Contractors
Wells drilled 3" to 24" in diameter; 60 to 1500 feet deep. Satisfaction guaranteed.
P. O. Box 616. Charleston, S. C.

T. W. NICOL, Con. Eng. A. BAUR, C. E.
E. W. FOSTER, C. E.
NICOL, BAUR & FOSTER,
Consulting and Contracting Civil Engineers
Railways, Water Works and Sewerage.
Room 103 Pollock Building, Mobile, Ala.

Court Houses and Public Buildings a Specialty.
ANDREW J. BRYAN & CO.,
ARCHITECTS, JACKSON, MISS

CHAS. A. HALL, M. E.
Mechanical Engineer,
66 St. Francis Street, MOBILE, ALA
Sulphuric Acid and Fertilizer Plants. Reports on North and South Alabama. Petroleum prospects.

Columbia Bridge Co.
Mill Buildings, Turntables, Coal Tipples and all other classes of Structural Work. All orders promptly filled.
General Offices: CARNEGIE, PA.

THE S. R. SMYTHE COMPANY,
PARK BUILDING, PITTSBURGH, PA.
Open Hearth "Steel Tube" and Rolling Mills Complete.
Smythe Gas Producers, 3 Types, most Advanced and Unequaled.
Steam and Hydraulic Machinery, "Buildings," etc.
NOTE.—OVER 100 PLANTS BUILT AND IN OPERATION.

FUEL BURNING APPLIANCES.
ROCKWELL ENGINEERING CO.,
26 Cortlandt St., NEW YORK.
Southern Representative,
Mr. FRANK PAUL BARBER,
HENNEN BUILDING, New Orleans, La.

ENGINEERING DEPTS. MACHINERY
Steel Construction, Steam Plants, Shop Improvement and Equipment.
Reports, Plans, Estimates, Inspection, Superintendence.
Steam Boilers and Engines, Electric Cranes, all types; Electric Motors and Generators, Electric Elevators, Pneumatic Tools, Centrifugal Pumping Machinery an Structural Steel for All Purposes.
(Descriptive Pamphlets on Application.)
Box 191, MORRISON & KINDERVATER, Richmond, Va.
Merchants National Bank Bldg

T. C. THOMPSON & BROS.
(INCORPORATED)
Home Office: Birmingham, Ala.
General Contractors and Builders.
CONTRACTS taken on percentage. ESTIMATES furnished and contracts taken anywhere in the United States. Also SUPERINTEND all kinds of work. COTTON MILL, Church, School and Public Buildings a specialty. Temporary Office: LANCASTER, S. C.

STEEL FRAME MILL BUILDINGS,
STEEL and IRON TANKS and VATS
Of Every Description.

Scaife's Germ-Proof Water Filters,
10 to 10,000 gallons capacity per hour.
WM. B. SCAIFE & SONS,
(Established 1802.)
PITTSBURG, PA.

BRIDGES.
VIADUCTS.
TURNTABLES.
POWER HOUSES.
FACTORY BUILDINGS.

VIRGINIA BRIDGE & IRON CO.
ROANOKE VA.

Classified Index of Advertisers.

For Alphabetical Index See Page 29

Drop Forgings.
Wilcox Mfg. Co., D., Mechanicsburg, Pa
Williams, J. H., & Co., Brooklyn, N. Y.

Dry-Kilns.
American Blower Co., Detroit, Mich.
Boston Blower Co., Hyde Park, Mass.
Sturtevant Co., B. F., Boston, Mass.

Dumbwaiters.
Speidel, J. G., Reading, Pa.

Drying Machinery.
Alsing Co., Inc., J. R. Brooklyn, N. Y.
American Blower Co., Detroit, Mich.
Bailey-Lebby Co., The, Charleston, S. C.
Crown Dryer Co., Cleveland, O.
Gurney Mfg. Co., The, Columbus, O.
Ruggles-Coles Engineering Co., New York, N. Y.
Sturtevant Co., B. F., Boston, Mass.
West Pulverizing Machine Co., New York, N. Y

Dust-Collecting System.
Allington & Curtis Mfg. Co., Saginaw, E. S. Mic
Sterling Blower & Pipe Mfg. Co., Hartford, Conn.

Dyeing Machinery.
Fairmount Machine Co., Philadelphia, Pa.
Klauder-Weldon Co., Amsterdam, N. Y.

Dynamos and Motors.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Commercial Electric Co., Indianapolis, Ind.
Crocker-Wheeler Co., Ampere, N. J.
General Electric Co., Schenectady, N. Y.
Gregory Electric Co., Chicago, Ill.
Guarantee Electric Co., Chicago, Ill.
Kentucky Electrical Co., Owensboro, Ky.
McCay Engineering Co., Baltimore, Md.
New Jersey Foundry & Machine Co., Plainfield, N. J.
Northern Electrical Mfg. Co., Madison, Wis.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Smethurst & Allen, Philadelphia, Pa.
Smith, Samuel J., & Co., Charlotte, N. C.
Sprague Electric Co., New York, N. Y.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.

Eave Trough Hangers, etc.
Heartley Mch., Variety Iron & Tool Works, Toledo, O.

Electric Contractors.
Alexander, Jr., S. B., Co., Charlotte, N. C.
Jenks, W. H., Richmond, Va.
Northern Elec. Mfg. Co., Madison, Wis.
Stanley Elec. Mfg. Co. Pittsfield, Mass.
Weatherford & Hilderbrand, Memphis, Tenn.

Electrical Instruments.
Bunnell, J. H., & Co., New York, N. Y.
Northern Electric Supply Co., Madison, Wis.
Stanley Electric Mfg. Co., Pittsfield, Mass.

Electric-Light and Power Plants.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Commercial Electric Co., Indianapolis, Ind.
Crocker-Wheeler Co., Ampere, N. J.
General Electric Co., Schenectady, N. Y.
General Incandescent Arc Light Co., New York.
Gregory Electric Co., Chicago, Ill.
N. J. Foundry & Machine Co., Plainfield, N. J.
Northern Electrical Mfg. Co., Madison, Wis.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Smethurst & Allen, Philadelphia, Pa.
Sprague Electric Co., New York, N. Y.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.

Electric Railway Equipment.
Alexander, Jr., Co., S. B., Charlotte, N. C.
General Electric Co., Schenectady, N. Y.
Northern Electrical Mfg. Co., Madison, Wis.
Sprague Electric Co., New York, N. Y.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
Western Electrical Supply Co., St. Louis, Mo.

Electrical Repairs.
Alexander, Jr., Co., S. B., Charlotte, N. C.
General Incandescent Arc Light Co., New York.
Gregory Electric Co., Chicago, Ill.
Guarantee Electric Co., Chicago, Ill.
Kentucky Electrical Co., Owensboro, Ky.
Smith, Samuel J., & Co., Charlotte, N. C.
Tower-Binford Elec. & Mfg. Co., Richmond, Va.

Electrical Supplies.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Bunnell, J. H., & Co., New York.
General Electric Co., Schenectady, N. Y.
Gregory Electric Co., Chicago, Ill.
Guarantee Electric Co., Chicago, Ill.
Jenks, W. H., Richmond, Va.
Johns Mfg. Co., H. W., New York, N. Y.
Kentucky Electrical Co., Owensboro, Ky.
McCay Engineering Co., Baltimore, Md.
Northern Electrical Mfg. Co., Madison, Wis.
Smith, Samuel J., & Co., Charlotte, N. C.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Sturtevant Co., B. F., Boston, Mass.
Triumph Electric Co., Cincinnati, O.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa

Electric Locomotives. (See Locomo. Bldrs.)

Electric Trucks.
Baldwin Locomotive Works, Philadelphia, Pa.

Electrotypers.
American Type Founders Co., Baltimore, Md.
Spencer & Hall, Baltimore, Md.

Elevators.
Albro-Clem Elevator Co., Philadelphia, Pa
Aultman Co., The, Canton, O.
Bartlett, Hayward & Co., Baltimore, Md.
Bates', James, Sons, Baltimore, Md.
Craig Ridgway Co., Coatesville, Pa.
Curran, Jas. H., Elevator Co., Cincinnati O.
Eaton & Prince Co., Chicago, Ill.
Fairmount Machine Co., Philadelphia, Pa.
Faunt Le Roy & Co., Baltimore, Md.
Link-Belt Engineering Co., Philadelphia, Pa
Maryland Foundry & Machine Co., Baltimore, Md.
Morse, Williams & Co., Philadelphia, Pa.
Parkhurst Bros. & Co., Indianapolis, Ind.
Park Mfg. Co., Charlotte, N. C.
Speidel, J. G., Reading, Pa.
Union Elevator & Machine Co., Chicago, Ill.
Westbrooks, J. B., Fdry. & Mch. Co., Danville, Va.

Elevator Buckets.
Caldwell, H. W., & Son Co., Chicago, Ill.
Clark Co., The W. J., Salem, O.
Dodge Mfg. Co., Mishawaka, Ind.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Tate, Jones & Co., Pittsburg, Pa.

Elevator Enclosures and Cabs.
Balderston, H., & Son, Baltimore, Md.
Bolles, J. E., Iron & Wire Works, Detroit, Mich.
Dow Wire Work Co., Louisville, Ky.
Dufur & Co., Baltimore, Md.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Myers Mfg. Co., The Fred J., Hamilton, O.

Elevator Rope. [See Wire Rope.]

Emery.
Carborundum Co., The, Niagara Falls, N. Y.
Scranton Corundum & Emery Wheel Co., Scranton, Pa.
Tanite Co., The, Stroudsburg, Pa.

Emery Wheels. [See Grinding and Polishing Machinery.]

Engineers. (Electric, Consulting, Contracting Mechanical and Mining.)
Alber & Byrne, Birmingham, Ala.
Alcott, T. C., & Son, Mount Holly, N. J.
Adams, Henry, Baltimore, Md.
American Bridge Co., New York, N. Y.
Blanton, Jr., E. A., Philadelphia, Pa.
Collier & Brown, Atlanta, Ga.
Erikson, Edw. E., Pittsburg, Pa.
Given, Wm. M., Birmingham, Ala.
Hall, Charles A., M. E., Mobile, Ala.
Hutton Engineering Co., Lexington, Va.
Kennedy, Walter, Pittsburg, Pa.
Lederle, Frank, Atlanta, Ga.
McRae, M. W., Atlanta, Ga.
Morrison & Kindervater, Richmond, Va.
Nicol, Baur & Foster, Mobile, Ala.
Northern Elec. Mfg. Co., Madison, Wis.
Perry, Nathaniel V., Atlanta, Ga.
Pratt & Boltwood, Chapel Hill, N. C.
Pratt Laboratory, N. P., Atlanta, Ga.
Robinson Contracting Co., Geo. A., Mobile, Ala.
Stanley Elec. Mfg. Co., Pittsfield, Mass.
Thorburn Reid, New York, N. Y.
Virginia Bridge & Iron Co., Roanoke, Va.
Weatherford & Hildebrand, Memphis, Tenn.
Witherow, Jas. P., Pittsburg, Pa.

Engines.
Alexander, Jr., Co., S. B., Charlotte, N. C.
American Blower Co., Detroit, Mich
Atlas Engine Works, Indianapolis, Ind.
Ball Engine Co., The, Erie, Pa.
Ball & Wood Co., New York, N. Y.
Boston Blower Co., Hyde Park, Mass.
Brownell, The, & Co., Dayton, O.
Buffalo Forge Co., Buffalo, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Chicago House Wrecking Co., Chicago, Ill.
Farquhar Co., A. B., Ltd., York, Pa.
Frick Co., Waynesboro, Pa.
Gibbes, W. H., & Co., Columbia, S. C.
Greenwald Co., I. & E., Cincinnati, O.
Hardie-Tynes Fdy. & Mch. Co., Birmingham, Ala.
Harrisburg Fdry. & Mch. Works, Harrisburg, Pa.
High Point Machine Works, High Point, N. C.
Hill, Wm. E., & Co., Kalamazoo, Mich.
International Power Co., Providence, R. I.
Leffel, James, & Co., Springfield, O.
Lidgerwood Mfg. Co., New York, N. Y.
Lombard Iron Works & Supply Co., Atlanta, Ga.
McClave, Hamilton & Rimmer, New York, N. Y.
McIntosh, Seymour & Co., New York, N. Y.
Murray Iron Works Co., Burlington, Iowa.
Mecklenburg Iron Works, Charlotte, N. C.
Newport News Shipb'g & Dry Dock Co., N. News, Va.
Phillips, Edward W., Baltimore, Md.
Phoenix Iron Works Co., Meadville, Pa.
Remington Machine Co., Wilmington, Del.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Schofields, J. S., Sons Co., Macon, Ga.
Smith, Courtney Co., Richmond, Va.
Southern Eng. & Boiler Works, Jackson, Tenn.
Southwark Foundry & Machine Co., Philadelphia, Pa.
St. Louis Iron & Machine Works, St. Louis, Mo
Struthers, Wells & Co., Warren, Pa
Sturtevant Co., B. F., Boston, Mass.
Union Iron Works Co., Selma, Ala.
Valk & Murdoch Iron Works, Charleston, S. C.
Valley Iron Works, Williamsport, Pa.
Vilter Mfg. Co., Milwaukee, Wis.
Wetherill, Robert, & Co., Chester, Pa
Westinghouse Machine Co., Pittsburg, Pa.
York Mfg. Co., York, Pa.

Engines. (Gas and Gasoline.)
Blakeslee Mfg. Co., The, Birmingham, Ala.
Columbus Machine Co., Columbus, O.
Cornell Machine Co., Chicago, Ill.
Fairbanks Co., Baltimore, Md.
Olds Motor Works, Detroit, Mich.
Otto Gas Engine Works, Philadelphia, Pa.
Struthers, Wells & Co., Warren, Pa.
Westinghouse Machine Co., Pittsburg, Pa.

Engines. (Oil.)
Aultman Co., The, Canton, O

Engravers.
Alpha-Photo Engraver Co., Baltimore, Md.
Baltimore Engraving Co., Baltimore, Md.

Exhaust Heads.
Bonar James & Co., Pittsburg, Pa.
Burt Mfg. Co., Akron, O.
Sterling Blower & Pipe Mfg. Co., Hartford, Conn.

Exhausters.
Cornell, J. B. & J. M., New York, N. Y.

Expansion Bolts.
New Jersey Foundry & Machine Co., Plainfield, N. J

Fans. Electric Ceiling, Etc.)
Parag n Fan & Motor Co., New York, N. Y.

Fans. (Ventilating.) [See Blowers, Exhaust Fans.]

Fans. (Hand.)
Frantz-Gage Mfg. Co., The, Chicago, Ill.

Feed-Water Heaters and Purifiers.
Berryman, Jas., Philadelphia, Pa.
Bonar, James, & Co., Pittsburg, Pa.
Gem City Boiler Co., Dayton, O.
Green Fuel Economizer Co., Matteawan, N. Y.
Harrison Safety Boiler Works, Philadelphia, Pa
Hawley Down Draft Furnace Co., The, Atlanta, Ga.
Kelley, Benj. F., & Son, New York, N. Y.
National Pipe Bending Co., New Haven, Conn.
Park Mfg. Co., Charlotte, N. C.
Patterson, Frank L., New York, N. Y.
Phillips, E. W., Baltimore, Md.
Phoenix Iron Works Co., Meadville, Pa.
Scaife, Wm. B., & Sons, Pittsburg, Pa.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Taunton Locomotive Mfg. Co., The, Taunton, Mass.
Warren Webster Co., Camden, N. J.

Felting. (Hair.)
Baeder, Adamson & Co., Philadelphia, Pa.

Fencing. (Iron and Wire.)
Balderston, H., & Son, Baltimore, Md.
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Burger Iron & Wire Works Co., Akron, O.
Chandlee Fence Co., Baltimore, Md.
Dow Wire Works Co., Louisville, Ky.
Dufur & Co., Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.
Ludlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.

Fertilizer Machinery. (See Phosphate Mchy.)

Files.
Barnett Co., G. & H., Philadelphia, Pa.
Besly, Chas. H., & Co., Chicago, Ill.
Nicholson File Work, Providence, R. I.

Filters. (Water.)
Hammond Iron Works, Warren, Pa.
Industrial Water Co., New York, N. Y.
Kennicott Water Softener Co., Chicago, Ill.
N. Y. Continental Jewell Filtration Co., New York, N. Y.
Scaife, Wm. B., & Sons, Pittsburg, Pa.
Watson, N. A., Erie, Pa.

Filters. (Oil.)
Bonar, James, & Co., Pittsburg, Pa.
Burt Mfg. Co., The, Akron, O.
Flower, Walter L., & Co., St. Louis, Mo.
Textile Mill Supply Co., Charlotte, N. C.

Filter Presses.
Johnson, J. & Co., New York, N. Y.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.

Fire-Brick.
Carolina Fire-Brick Works, Killian, S. C.
Garden City Sand Co., Chicago, Ill.
Pomona Terra Cotta Co., Pomona, N. C.
Powhatan Clay Mfg. Co., Richmond, Va.
Reese-Hammond Fire-Brick Co., Bolivar, Pa.
Stevens', H., Sons Co., Macon, Ga.

Fire Extinguishers.
Bailey-Lebby Co., The, Charleston, S. C.
Childs Co. O. J., Utica, N. Y.
General Fire Extinguisher Co., Providence, R. I.
International Sprinkler Co., Philadelphia, Pa.

ASBESTOS FIRE-FELT COVERINGS
PURE ASBESTOS — ABSOLUTELY FIRE PROOF.
REPLETE WITH AIR CELLS — PERFECT NON-CONDUCTORS.
STRONG, LIGHT, FLEXIBLE, EASILY APPLIED.
MADE IN SECTIONS — THREE FEET LONG
FIT STANDARD PIPE — ½ INCH TO 16 INCHES.
H. W. JOHNS MFG. CO.
NEW YORK · CHICAGO · PHILADELPHIA · BOSTON
MAKERS OF
ASBESTOS MATERIALS. — LIQUID PAINTS & STAINS
ROOFING MATERIALS. — ELECTRICAL MATERIALS.

ESTABLISHED 1873.

SKYLIGHTS
And VENTILATORS.
MADE OF SHEET METAL.
Proof against leaks from weather and condensation.
E. VAN NOORDEN COMPANY,
944-952 Massachusetts Ave., Corner Burnham St.
BOSTON, MASS.

EDWIN B. STIMPSON & SON,
31 Spruce St.,
NEW YORK.

RIVETS
RIVETS
For Harness and Leather Work.

CAROLINA FIRE BRICK WORKS,
KILLIAN, S. C.
Manufacturers of high-grade
FIRE BRICK
of all shapes and sizes, and shippers of Fire Clay and Glass Sand. Correspondence solicited and prices quoted delivered anywhere.

The Powhatan Clay Mfg. Co.,
RICHMOND, VA.
White, Buff, Speckled and Gray Front Bricks
In All Sizes and Shapes. FIRE BRICK.

Guibert Swinging Hose Rack

Manufactured by
Cliff & Guibert Co.
198 West Broadway,
New York City.
Send for Catalogue.

"WINNERS!"

Standard Ball-Bearing Philadelphia Casters.
Samples and Catalogue Free.
STANDARD CASTER & WHEEL CO.
318-326 E. 23d St., NEW YORK.

The S.K.C. System
was the pioneer in alternating current work. The S. K. C. Alternator is the only successful inductor generator extant. With this machine and with none other, voltage regulation of the separate phases is possible. S.K.C. Transformers, Switchboards and Motors are of the highest order.

Stanley Electric Mfg. Co.
PITTSFIELD, MASS.
Northern Electrical Mfg. Co.
MADISON, WIS.
SALES OFFICES:
New York: 71 Broadway
Boston: Equitable Bldg.
Seattle, Wash.: Pioneer Bldg.
San Francisco, Cal.: 31-33 New Montgomery St.
Toronto, Canada: Canadian General Electric Co.
LILLIBRIDGE, N.Y., 25-35

FIRE, PAVING, FRONT — BRICK
Annual Capacity 30,000,000.
Our line is unsurpassed for quality, shapes, variety of colors and shades. We employ only the best materials and most improved methods.
REESE-HAMMOND FIRE BRICK CO., General Office & Works, Bolivar, Pa. Branch Office, Bissell Block, Pittsburg, Pa.

ARTESIAN WELL DRILLERS.
WATER SUPPLY CONTRACTORS.
SYDNOR PUMP & WELL CO.
INCORPORATED.
BOX 949. RICHMOND, VA.

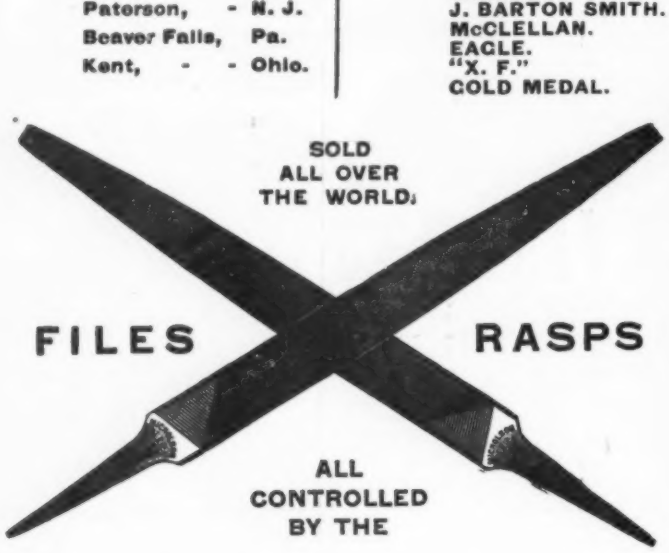
Factories:

Providence, - R. I.
Pawtucket, - R. I.
Anderson, - Ind.
Paterson, - N. J.
Beaver Falls, Pa.
Kent, - - Ohio.

Leading Brands:

NICHOLSON.
ARCADE.
GREAT WESTERN.
KEARNEY & FOOT.
AMERICAN.
J. BARTON SMITH.
McCLELLAN.
EAGLE.
"X. F."
GOLD MEDAL.

SOLD ALL OVER THE WORLD.



ALL CONTROLLED BY THE

NICHOLSON FILE CO.

PROVIDENCE, R. I., U. S. A.

LEHIGH Portland Cement

LEHIGH PORTLAND CEMENT

High Tensile Strength, Finely Ground, Light and Uniform in Color.

Southern and Western Distributors:

THE KELLEY ISLAND LIME & TRANSPORT CO.

CLEVELAND, OHIO

This back-ground was photographed from a slab of Nazareth Concrete.
Proportions — 1 part cement. { 2 parts bar sand. 4 parts screenings (stone). 8 parts 1½ inch stone.
Crushing test after 28 days **202 Tons per cubic foot.**
Write **CHARLES WARNER COMPANY, New York. Philada. Wilmington.**

Works Established 1868.

Star Portland Cement

Used exclusively in the following work:

CONCRETE RESERVOIRS, Washington, D. C.
NEW CHARLESTOWN BRIDGE, Charlestown, Mass.
NEW POST OFFICE, Chicago, Ill.
EDISON BUILDING, New York.

And a host of others.

Bonneville Portland Cement Co.

Office, 604-5 Fidelity Building, Philadelphia.

Ruggles-Coles Dryers

FOR ALL MATERIALS,
CONCENTRATES, LIME, SLAG, ROCK, CLAY, PHOSPHATES, Etc.

Ruggles-Coles Eng. Co.

41 Cortlandt St., NEW YORK.
Old Colony Bldg., CHICAGO.

SMOKE CONSUMERS

are expensive and superfluous if you burn

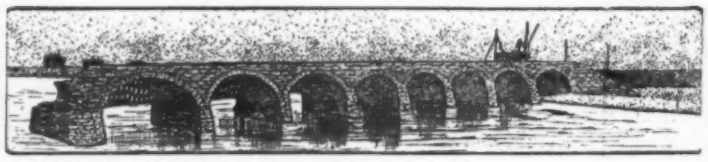
FALCON WHITE ASH MOSHANNON COAL.

If a TON of it were the size of this page, the ASH it contains would be only as large as this ad.

W. F. JACOBY & COMPANY,
920 Stephen Girard Building, PHILADELPHIA, PA.
1316 Continental Trust Bldg., BALTIMORE, MD.
70 Kilby Street, BOSTON, MASS.

The ENGINEERING WONDERS of the WORLD

"GIANT PORTLAND CEMENT," "THE OLD RELIABLE,"



Used exclusively on **The Rockville Bridge** of the Pennsylvania Railroad, 3820 feet long, four tracks, and all stone arches. The largest masonry bridge in the world. (*Engineering News*, May 10, 1900.)

AMERICAN CEMENT COMPANY, 22 SOUTH 15th STREET, PHILADELPHIA, PA.

ALPHA Portland Cement

Is being used by the United States Government and leading contractors.

WASHINGTON OFFICE, BOND BLD'G, 14th and N. Y. Ave.
WORKS: ALPHA, N. J.
BALTO. OFFICE, Room 4, Builders Exchange.
GEN'L OFFICE: EASTON, PA.

Blacksmith Coal.

The COAL we sell for smithing purposes is not ordinary steam coal, but is a coal that was found to have the requisite qualities required for the forge. Then it is CRUSHED, SCREENED and WASHED. In this way all slate and sulphur is eliminated. The largest railroad companies in the South are using it in their shops, and many other shops in Mobile and elsewhere find it to be the best SMITHING COAL. Our price for it is very low in car load lots direct from mines.

MOBILE COAL COMPANY,
MOBILE, ALA.

SOUTHEASTERN LIME & CEMENT CO.
CHARLESTON, S. C.

Southern Agents for Lehigh and Dexter high grade

American Portland Cements

IMPORTERS
PORTLAND CEMENT.
C. M. GILBERT & CO., SAVANNAH, GA.

SPENCER & HALL,
BALTIMORE, MD.

Type Founders and Electrotypers

Write for Special Prices on SPACES and QUADS. We sell them cheap.

THOS. F. HANLON, Corporation Lawyer, 818 C St. N.W., Washington, D. C. If you want to convert your business into a stock company, or want industrial plants of any kind to locate in your town, a charter and company organized, capital, officers, directors and practical men, consult me.

WILLIAM M. BIRD & CO.
OFFICE: 205 EAST BAY ST., CHARLESTON, S. C.
Importers of

CEMENTS

PORTLAND, AMERICAN AND FOREIGN

HOFFMAN ROSENDALE, One of the Best on the Market.

WAREHOUSES: { CHARLESTON, S. C. . . . . WEST SHORE TERMINAL. SAVANNAH, GA. . . . . CENTRAL OF GA. R. R.

MARYLAND CEMENT CO.
MANUFACTURERS OF

Highest Grade Portland Cement.

OFFICE: Builders' Exchange, Baltimore, Md.
WORKS: Sparrows Point, Maryland.

Established 1883.

HIGH GRADE **PORTLAND CEMENT,**
FIRE BRICK AND GENERAL BUILDING SUPPLIES.

Members { Builders' and Traders' Exchange. Builders' Club.

THE GARDEN CITY SAND CO.
1201 to 1205 Security Building,
Long Distance 'Phones. Chicago.

Quality of Mixing Highest — Cost of Mixing Lowest

These two expressions comprehend all that is desirable—we might say, "the maximum of efficiency"—in a concrete mixer. Results—quality, quantity and cost of product—are what the engineer and contractor are after. A mixer that will turn out a product whose quality cannot be surpassed and in quantity greater than that possible from other makes, and at a minimum of cost, is a pretty good machine to have, is it not? Such is the record maintained by the stationary and portable types of

RANSOME CONCRETE MIXERS

and it is upon such guarantee that they are sold.

"They are surely the greatest machines for the purpose ever invented."

We are always glad to answer all inquiries and give any information desired.

RANSOME & SMITH CO.,
Designers and Manufacturers of Concrete Machinery,
19 NINTH STREET, BROOKLYN, N. Y.

Classified Index of Advertisers.

For Alphabetical Index See Page 29.

Fire Escapes.
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Dow Wire Works Co., Louisville, Ky.

Flooring. (Polished Hardwood.)
Adams, J. M., Baltimore, Md.
Wilce Co., The T., Chicago, Ill.

Flour and Grist Mill Machinery and Supplies.
Alsing Co., Inc., J. R., Brooklyn, N. Y.
Caldwell, H. W., & Son Co., Chicago, Ill.
Dehner-Wuerrel Mill Bldg. Co., St. Louis, Mo.
DeLoach Mill Mfg. Co., Atlanta, Ga.
Nordyke & Marmon Co., Indianapolis, Ind.
Salem Machine Works, Salem, Va.
Sprout, Waldron & Co., Muncy, Pa.
Starr, B. F., & Co., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Forges.
Boston Blower Co., Hyde Park, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Crumlish Forge Co., Buffalo, N. Y.
Sturtevant Co., B. F., Boston, Mass.

Foundry Equipment and Supplies.
Etting, Edw. J., Philadelphia, Pa.
Hill & Griffith Co., Cincinnati, O.
Obermayer Co., S., Cincinnati, O.
Paxson Co., J. W., Philadelphia, Pa.

Foundry Ladles. [See Foundry Equipment

Fruit Evaporators.
Wilson, H. McK., & Co., St. Louis, Mo.

Fuel Economizer.
Broomell, Schmidt & Co., Ltd., York, Pa.
Green Fuel Economizer Co., Matteawan, N. Y.

Fuel Oil Equipment and Machinery.
Petroleum Iron Works Co., Washington, Pa.
Rockwell Engineering Co., New York.

Furnace Builders.
Erikson, Edw. E., Pittsburg, Pa.
Kennedy, Walter, Pittsburg, Pa.
Means & Fulton Iron Works, Birmingham, Ala.
Witherow, Jas. P., Pittsburg, Pa.

Furnace Heating. (Stoves.)
Richmond Stove Co., Norwich, Conn.

Furnaces. (Metallurgical.)
Rockwell Engineering Co., New York, N. Y.

Fuse. (Wire Blocks, Fuses etc.)
American Electric Fuse Co., Adrian, Mich.

Gages (Recording) and Counters.
American Steam Gauge Co., Boston, Mass.
Crosby Steam Gauge & Valve Co., Boston, Mass

Galvanized Sheets.
American Sheet Steel Co., New York, N. Y.

Gas Regulator.
Jacobson Machine Manufacturing Co., Warren, Pa.

Gas Producers.
Erikson, Edward E., Pittsburg, Pa.
Smythe Co., The S. R., Pittsburg, Pa.
Wood, R. D., & Co., Philadelphia, Pa.

Gas and Steam Fitters' Tools.
Saunders' Sons, D., Yonkers, N. Y

Gaskets. (Rubber.)
Boston Belting Co., Boston, Mass

Gear Cutting Machines.
Whiton Machine Co., D. E., New London, Conn.

Gears and Pinions. (Raw Hide.)
New Process Rawhide Co., Syracuse, N. Y.

Gearing.
Chester Steel Castings Co., Philadelphia, Pa.
Fairmount Machine Co., Philadelphia, Pa.
Jeffrey Mfg. Co., The, Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Morse, Williams & Co., Philadelphia, Pa.
New Process Rawhide Co., Syracuse, N. Y.
Smith Co., S. Morgan, York, Pa.
Woods' Sons, T. B., Chambersburg, Pa.

Grates and Grate Bars.
Kelly Fdry. & Mch. Co., Goshen, Ind.
McClave, Brooks & Co., Scranton, Pa.

Grates. (Domestic.)
Burnam Grate Co., Huntsville, Ala.

Grain Elevator Supplies.
Aultman Co., The, Canton, O.
Caldwell, H. W., & Son Co., Chicago, Ill.
Clark Co., The W. J., Salem, O.
Dodge Mfg. Co., Mishawaka, Ind.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Nicetown, (Phila.) Pa.

Graphite.
Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon Crucible Co., Jos., Jersey City, N. J.
Hill & Griffith Co., Cincinnati, O.

Grease. (Lubricating.)
Cook's Sons, Adam, New York, N. Y.
Robinson, Wm. C., & Son, Baltimore, Md.

Grinding and Polishing Mchy.
Abrasive Material Co., The, Philadelphia, Pa.
Builders' Iron Foundry, Providence, R. I.
Carborundum Co., The, Niagara Falls, N. Y.
Norton Emery Wheel Co., Worcester, Mass.
Scranton Corundum & Emery Wheel Co., Scranton, Pa.
Sturtevant Mill Co., Boston, Mass.
Tanite Co., The, Stroudsburg, Pa.
Vitrified Wheel Co., Westfield, Mass.

Groovers.
Huther Bros., Rochester, N. Y.

Hammers. (Steam and Power.)
Dupont Mfg. Co., St. Johnsbury, Vt.
Robinson, J. M. & Co., Cincinnati, O.

Handle Mchy. [See Woodwork'g Mchy.]
Egan Co., The, Cincinnati, O.
Fay, J. A., & Co., Cincinnati, O.
Root, B. M., York Pa.
Trevor Mfg. Co., Lockport, N. Y.

Hardware Specialties.
Covert Mfg. Co., West Troy, N. Y.
Cronk Hanger Co., Elmira, N. Y.
Schaefer, W. J., & Co., New York, N. Y.
Wrightsville Hardware Co., Wrightsville, Pa.

Hardwood Flooring.
Adams, J. M., Baltimore, Md.
Wilce Co., The T., Chicago, Ill.

Hay Tools.
Myers & Bro., F. E., Ashland, O

Heating Apparatus.
American Blower Co., Detroit, Mich.
Boston Blower Co., Hyde Park, Mass.
Dowman Mfg. Co., Atlanta, Ga.
Exeter Machine Works, Exeter, N. H.
Monitor Steam Generator Mfg. Co., Baltimore, Md.
Peck-Hammond Co., The, Cincinnati, O.
Richmond Stove Works, Norwich, Conn.
Sturtevant Co., B. F., Boston, Mass.
Vapor Heating Co., York, Pa.
Warren Webster Co., Camden, N. J.

Hoisting Machinery.
Bunnell Machinery Co., Chicago, Ill.
Byers Machine Co., John F., Ravenna, O.
Carlin Machinery & Supply Co., Allegheny, Pa.
Case Manufacturing Co., The, Columbus, O.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Exeter Machine Works, Pittston, Pa.
Hardie-Tynes Fdy. & Mch. Co., Birmingham, Ala.
Hunt Co., C. W., West New Brighton, N. Y.
Jeffrey Mfg. Co., The, Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Males Co., The, Cincinnati, O.
Robinson Machine Co., Monongahela, Pa.
Sullivan Machinery Co., Chicago, Ill.

Hose.
Boston Belting Co., Boston, Mass.
Eureka Fire Hose Co., New York, N. Y.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York, N. Y.
Rhoads, J. E., & Sons, Wilmington, Del.
Textile Mill Supply Co., Charlotte, N. C.

Hose Couplings.
Clark Co., W. J., Salem, O.

Hose Reel. (Fire.)
Cliff & Guibert Co., New York, N. Y.

Hotels.
New Atlantic Hotel, Norfolk, Va.

Hydrants.
Glamorgan Pipe & Foundry Co., Lynchburg, Va
Ludlow Valve Mfg. Co., Troy, N. Y.
Wood, R. D., & Co., Philadelphia, Pa.

Hydraulic Machinery.
Smythe Co., The S. R., Pittsburg, Pa.
Wood, R. D., & Co., Philadelphia, Pa.

Ice Making Machinery & Supplies.
Arctic Mch. Co., Cleveland, O
Barber Mfg. Co., A. H., Chicago, Ill.
Cochran Co., Lorain, O.
Frick Co., Waynesboro, Pa.
Healy Ice Machine Co., Chicago, Ill.
Remington Machine Co., Wilmington, Del.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Vilter Mfg. Co., Milwaukee, Wis.
Wolf Co., The Fred W., Chicago, Ill.
York Mfg. Co., York, Pa.

Incorporators. (Companies.)
Delaware Trust Co., Wilmington, Del.
Hornaday, J. P., Cincinnati, O.
Magid, Louis B., & Co., New York, N. Y.

Indicators. (Steam Engines.)
American Steam Gauge Co., Jamaica Plain, Mass.
Crosby Steam Gauge & Valve Co., Boston, Mass.

Industrial Railways.
Hunt Co., C. W., West New Brighton, N. Y.
Stuebner Iron Works, G. L., Long Island City, N. Y.

Injectors.
American Injector Co., Detroit, Mich.
Jenkins Bros., New York, N. Y.
Lunkenheimer Co., Cincinnati, O.
Ohio Injector Co., Wadsworth, Ohio.
Penberthy Injector Co., Detroit, Mich.
Watson, N. A., Erie, Pa.

Insurance.
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
Maryland Casualty Co., Baltimore, Md.

Insulator Pins—Telephone Poles.
New Orleans Wood Preserving Wks., New Orleans, La.
Tennessee Lumber Co., Lewisburg, Tenn.

Insulated Wire.
Hazard Manufacturing Co., Wilkes Barre, Pa.

Insulators—Connectors.
American Electric Fuse, Co., Adrian, Mich.

Iron.
Alabama Consol. Coal & Iron Co., Birmingham, Ala.
American Iron & Steel Mfg. Co., Lebanon, Pa.
American Sheet Steel Co., New York, N. Y.
American Steel Hoop Co., Pittsburg, Pa.

Iron Brokers.
Armstrong, R. S., & Bro., Atlanta, Ga.
Cox, Jr., Justice, & Co., Inc., Philadelphia, Pa.
Etting, Edw. J., Philadelphia, Pa.

Jacks. (Lifting, Track and Oil Well.)
Watson-Stillman Co., New York, N. Y.

Joist Hangers.
Clark, W. J., Co., Salem, O.

Knives. (For Woodworking Machinery.)
Chicago Knife Works, Chicago, Ill.

Knitting Machinery.
Campbell & Clute Machine Co., Cohoes N. Y.
Champion Machine Co., Philadelphia, Pa.
Excelsior Knitting Machine Co., Allentown, Pa.
Mayo Knitting Machine & Needle Co., Franklin, N. H.
McMichael & Wildman Mfg. Co., Norristown, Pa.
Nye & Tredick, Philadelphia, Pa.
Scott & Williams, Philadelphia, Pa.

Lamps. (Arc and Incandescent.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
General Electric Co., Schenectady, N. Y.
General Incandescent Arc Light Co., New York, N. Y.
Gregory Electric Co., Chicago, Ill.
Kentucky Electrical Co., Owensboro Ky.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Lamp. (Gasoline.)
Imperial Gas Lamp Co., Chicago, Ill.

Lamp (Incandescent) **Cleaner.**
Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.

Lamp (Incandescent) **Adjuster.**
Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.

Lamp (Incandescent) **Renewer.**
Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.

Lamp. (Incandescent Hydro Carbon.)
Kitson Hydro Carbon, H. & I. L., Co., Phila., Pa.

Lands.
Bordenkircher, Samuel, Cleveland, O.
Brobston, Fendig & Co., Brunswick, Ga.
Connor, W. D., St. George, S. C.
Hornaday, J. P., Cincinnati, O.
Killebrew, J. B., Industrial and Immigration Agent, Nashville, Tenn.
Richards, M. V., Land & Industrial Agt., Wash., D. C.
Southern States Trust Co., Charlotte, N. C.
Sutherland, Howard, Land Agent, Elkins, W. Va.
Watson, R. E., Atlanta, Ga.

Lanterns.
Dietz Co., R. E., New York.

Lathes. (Engine.)
American Tool Works Co., Cincinnati, O.
McCabe, J. J., New York, N. Y.
Schumacher & Boye, Cincinnati, O.

Laundry Machinery.
Adams Laundry Machinery Co., Troy, N. Y.
Sinclair Co., S. H., Chicago, Ill.
Wilson Laundry Machinery Co., Columbia, Pa

Lead. (Sheet.)
Robertson Mfg. Co., James, Baltimore, Md.

Lead and Tin. (Pig.)
Magnolia Metal Co., New York, N. Y
Hierlz, Theo., & Son, St. Louis, Mo.
Ryan & Co., J. J., Chicago, Ill.

Lime.
Carolina Portland Cement Co., Charleston, S. C.
Southeastern Lime & Cement Co., Charleston, S. C.

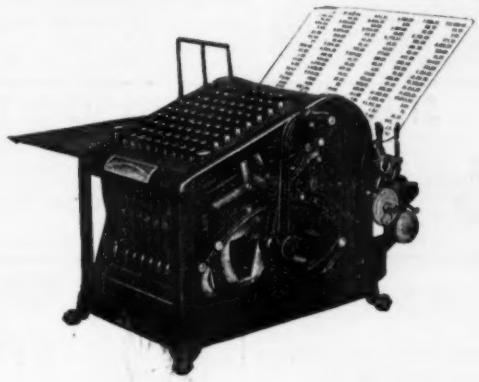
Locomotive Builders. [See Railroad Equipment and Supplies.]
American Locomotive Co., New York, N. Y.
Baldwin Locomotive Works, Philadelphia, Pa.
Climax Mfg. Co., Corry, Pa.
Males Co., Cincinnati, O.
Porter Co., H. K., Pittsburg, Pa.

Loom Harness.
American Supply Co., Providence, R. I.
Spartanburg Loom Harness Co., Spartanburg, S. C.

FREE!

You can use this for 30 days without risk or cost.

Trial Balance in 30 Minutes.



No Night Work.

Adds Anything.

Ask your Bank Its Worth.

The Burrough Adding Machine

Made By

American Arithmometer Co.,
St. Louis, Mo.

BRANCH OFFICES:

New York—202 Broadway.
Philadelphia—906 Provident Building.
Chicago—902 Ft. Dearborn Building.
New Orleans—846 Common street.
Boston—513 John Hancock Building.
Pittsburg—1006 Park Building.
Rochester (N. Y.)—773 Powers Block.
San Francisco—303 California street.
Cleveland—1206 American Trust Building.
Washington (D. C.)—904 F street.
Kansas City—529 Beals Building.
Milwaukee—91 Wisconsin street.
Minneapolis—617 Guaranty Building.
Cincinnati—1921 Hewitt avenue.
Louisville—622 West Main street.
Atlanta—833 Equitable Building.
Des Moines (Iowa)—311 Fifth street.
Montreal (Canada)—390 St. James street.

THE UNIVERSITY

School for Boys

1205 Cathedral Street.
(Incorporated.)

W. S. MARSTON, A. B. & C. E., Principal.

22d Year Begins Thursday, September 26th.

The most fully equipped Day School for Boys in the South. Primary, Junior and Senior Sections. In the Primary Section, in which the number is limited to 30, boys are taken as young as seven. In June of this year the school had successful candidates for admission to the Johns Hopkins, Harvard, Princeton, The Massachusetts Institute of Technology, Lehigh University and Haverford College.

There is a large and fully-equipped Gymnasium Play Ground, Library and Reading Room. The buildings are the best lighted and ventilated of any in Baltimore.

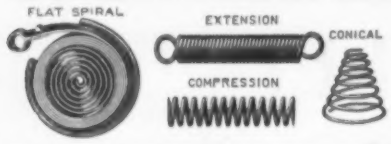
Catalogues at the Johns Hopkins and at the book stores. For further information address the Principal at 1205 Cathedral Street, or after September 15th apply at the school.

CRUMLISH
Portable and Stationary
FORGES
FOR ALL PURPOSES.
COMPRESSED AIR FORGES.
Correspondence Solicited.
CRUMLISH FORGE CO.
18-20 Elk Street, BUFFALO, N. Y.

G. L. STUEBNER
IRON WORKS,
MANUFACTURER OF
Self-Dumping and Self-Righting
HOISTING BUCKETS
FOR HANDLING
Coal, Ores, Clay, Sand, Etc.

Send for Catalog 555.
East Ave. Cor. 3d St.
Long Island City, N. Y.

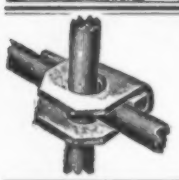
The "Lattina" Cellular Tire is Springy, Non-Puncturable, and adapted to any kind of vehicle from Automobile to Bicycle. We make it.
THE RUBBER TIRE CO., Inc., 1215 Market St., Philadelphia, Pa.



Wire and Springs
Of Every Description.
CARY SPRING WORKS,
240 & 242 W. 29th St., NEW YORK, N. Y

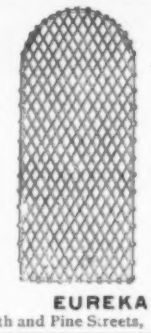
J. E. BOLLES Iron and Wire Works.

Bank Railings, Elevator Enclosures and Cars, Grills, Electro Bronze Work, Architectural and Builders' Iron Work, Etc.
Send for catalogue and mention this paper. DETROIT, MICH.



STEEL STAMPINGS OF ALL DESCRIPTIONS.
WIRE STRAIGHTENED AND CUT TO LENGTHS.
If you want a quantity of anything that can be stamped from steel or formed from wire, get our prices.
CHANDLEE FENCE COMPANY,
Manufacturers of
CHANDLEE PATENT FIELD & LAWN FENCE. 126 South St., Baltimore, Md.

WIRE RAILING
AND
ORNAMENTAL WIRE WORKS.
DUFUR & CO.
311 North Howard Street, BALTIMORE.
Wire Railing for Cemeteries, Lawns, Gardens, Offices and Balconies; Window Guards, Tree Guards, Wire Cloth, Sieves, Fenders, Cages, Sand and Coal Screens, Iron Bedstead, Chairs, etc.



WINDOW GUARDS
AND
OFFICE RAILING
of every description A Specialty.
Builders' Iron Work,
Iron & Wire Fencing
Promptly Supplied at reasonable prices.
Estimates and Cuts cheerfully furnished.
EUREKA SUPPLY CO.
8th and Pine Streets, CHATTANOOGA, TENN.

H. BALDERSTON & SON,
119 Light Street BALTIMORE, MD.
Wire Grating for Windows, Office Railing, Wire Screens for Banks, Churches, and Skylights.
Wire Elevator Enclosures a Specialty.

The Fred. J. Meyers Mfg. Co.
HAMILTON, O.
Manufacturer of Office and Bank Railings, Window Guards of every description, Elevator Cabs and Enclosures, Stable Fittings and Crestings, Ticket and Conductors' Punches, Wire Cloth for Coal and Ore Mines.
Send for Catalogue.

ARTISTIC WIRE WORK
GRILLS
BANK & ELEVATOR ENCLOSURES
WIRE & IRON FENCES
DOW WIRE WORKS CO.
LOUISVILLE, KY.

Iron Fences, Park Railings, Etc.

Burger Iron & Wire Works Co., Akron, Ohio.

AULTMAN
ELEVATORS AND CONVEYORS
COAL AND ROCK CRUSHERS
COAL TIPPLES
CAR HAULS
SEND FOR CATALOGUE D
THE AULTMAN COMPANY.
CANTON, OHIO.

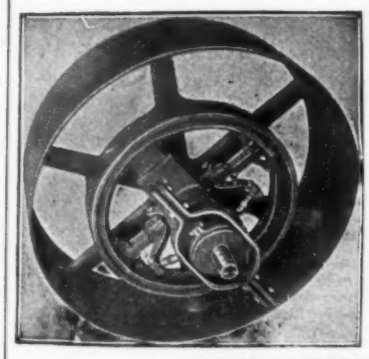
Noiseless Gearing
is no longer a luxury but a necessity in an up-to-date factory or machine shop. And we make the **ONLY** Noiseless Gearing which is Durable.

New Process Pinions
are Noiseless, Durable, Cleanly and Greatly Reduce Vibration. Write for Catalog.
We also make Metal Gears, both Spur and Bevel.
The New Process Raw Hide Co.,
SYRACUSE, N. Y.

Pneumatic Tubes
For Rapid Transmission of Cash, Orders, Papers, Documents. Used in Dry Goods Houses, Banks, etc. Write for estimates.
Bostedo Pneumatic Tube Co.
Chicago, 156 Lake St.
New York, 156 Fifth Ave.

Nickel Plating Outfits.
POLISHING MACHINERY.
CHEMICALS.
DYNAMOS.
THE HANSON & VAN WINKLE CO.
CHICAGO. NEWARK, N. J.
"ADDRESS DEPARTMENT W"

The "Jacobson" Friction Clutch Pulleys and Cut-off Couplings
FOR
POWER PLANTS, PAPER MILLS, GAS ENGINES,
or any other place where a first-class clutch is required.

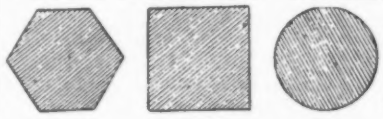


We also make a line of Air Compressors, Gas Regulators, Gas Soldering Furnaces, and all kinds of Power Transmitting Machinery.
Send for circulars and discounts.
See our Exhibit at the Pan-American.
JACOBSON MACHINE MFG. CO., WARREN, PA.

THE WOOD RIM PULLEY. WITH IRON HUBS AND ARMS.
THE CHASE.
CHASE PULLEY COMPANY, PROVIDENCE, R.I.
SEND FOR ILLUSTRATED CATALOGUE &c.

GOLDEN'S FOUNDRY & MACHINE CO., Columbus, Ga.
Manufacturers of
Send for Price List and Discount Sheet.
Hangers, Shafting, Machine Moulded Pulleys.
COUPLINGS, PILLOW BLOCKS, FLOOR STANDS, COLLARS, &c.

THE FINISHED STEEL CO., Youngstown, O.
Manufacturers of Polished Steel
SHAFTING.



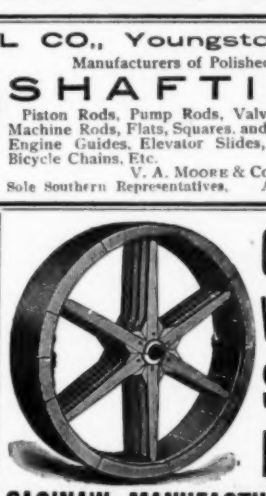
No. 1. No. 2. No. 3.

Piston Rods, Pump Rods, Valve Stems, Fine Machine Rods, Flats, Squares, and Hexagons for Engine Guides, Elevator Slides, Keys, Screws, Bicycle Chains, Etc.
V. A. MOORE & CO.,
Sole Southern Representatives, ATLANTA, GA.

THE GURNEY WOOD PULLEY.

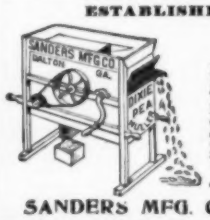
Built of Sugar Maple in a most thorough & workmanlike manner. They excel in STRENGTH, DURABILITY and ABILITY to withstand hard service without slipping on shaft. GURNEY MFG. CO. Roan Mountain, Tenn.
For sale by Savage & Tyler, Knoxville, Tenn., Asheville Foundry and Supply Co. Asheville, N. C.

T. B. WOOD'S SONS,
Manufacturers of
Shafting, Pulleys, Hangers, Rope Sheaves, Etc.
CHAMBERSBURG, PA.



GILBERT WOOD SPLIT PULLEYS
SAGINAW MANUFACTURING CO.
Saginaw, Michigan, U. S. A.
New York Branch, - 44 Dey Street
Chicago Branch, 35 S. Canal Street
Sales Agencies in all the Principal Cities.
Cable Address: ENGRAVE, A B C & Lieber's Codes.

ESTABLISHED 1888.



BUILDERS OF
Improved Saw Mills, Boiler Fronts, Lumber Trucks, Architectural Iron, Ornamental Iron, Cotton Mill Castings, Grate Bars, Wrought Iron Railing, Balcony Work, Iron Fence, Grille Work, and "DIXIE" Pea-Hullers.
SANDERS MFG. CO., Dalton, Ga.

THE BUCKEYE
WOOD SPLIT PULLEYS

Lightest Pulleys on the Market.
The Ohio Pulley Co. MARION, OHIO.

OILLESS BEARINGS.
Metalined Loose Pulley Bushes require no oil or other lubricant, either at the start or occasionally afterwards. Will run perfectly dry for years.
North American Metaline Co.
West ave. cor. W. 3d st.
Long Island City, N.Y.
Send for Loose Pulley Circular No. 5.

Wire Netting, Wire Fencing, Wire Cloth, Wire Lathing,
Coal and Sand Screens,
Fruit Drying Cloth,
Fly-Screen Cloth,
.. Hardware Grades.
JERSEY
The Roebling Standard
Fire-Proof Construction.
Iron, Steel, Galv'd, Brass,
Bronze and Copper Cloth.
The New Jersey Wire Cloth Co., Trenton, N. J.
NEW YORK. CLEVELAND. CHICAGO. SAN FRANCISCO.

Classified Index of Advertisers.

For Alphabetical Index See Page 29.

Looms and Weaving Machinery.
American Supply Co., Providence, R. I.
Draper Co., Hopedale, Mass.
Fairmount Machine Co., Philadelphia, Pa
Kilburn, Lincoln & Co., Fall River, Mass.
Lowell Machine Shop, Boston, Mass.
Mason Machine Works, Taunton, Mass.

Lubricating Compounds.
Cook's, Adam, Sons, New York, N. Y.

Lubricators and Oil Cups.
Besly, Chas. H., & Co., Chicago, Ill.
Cook's Sons, Adam, New York, N. Y.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Detroit Lubricator Co., Detroit, Mich.
Lunkenheimer Co., Cincinnati, O.
Penberthy Injector Co., Detroit, Mich.

Lumber and Hardwoods.
Hallam, W. W., Macon, Ga.
Wilce Co., The T., Chicago, Ill.

Machinery. (Winding, Measuring & Folding.)
Philadelphia Textile Specialty Mch. Co., Phila., Pa.

Machinery. (Special.)
Alsing Co., J. R., Inc., Brooklyn, N. Y.
Aultman Co., The, Canton, O.
Heartley Mch., Variety Iron & Tool Works, Toledo, O.
Leffler, Charles, & Co., Brooklyn, N. Y.
Philadelphia Textile Specialty Mch. Co., Phila., Pa.
Royersford Foundry & Machine Co., Royersford, Pa.

Machinery and Tools. (New and Second-hand.)
American, Chicago, Ill.
American Elec. Supply & Mfg. Co., New York, N. Y.
Armstrong, R. S., & Bro., Atlanta, Ga.
Asher, A., New York, N. Y.
Baird, U., Machinery Co., Pittsburg, Pa.
Baker, H. C., & Co., Philadelphia, Pa.
Benbow Co., The W. C., Columbus, O.
Bowler, Geo. H., Cleveland, O.
Camp Engineering Co., Chicago, Ill.
Carlin Machinery & Supply Co., Allegheny, Pa.
Casey, D. L., Mch. Co., Springfield, O.
Chicago House Wrecking Co., Chicago, Ill
Cleveland Belting & Machinery Co., Cleveland, O.
Conard, Thos. P., Philadelphia, Pa.
Cox, Justice Jr., & Co., Ltd., Philadelphia, Pa.
Eclipse Machine & Boiler Works, Chicago, Ill.
Florida Iron & Wood Works, Apopka, Fla.
Henning, John, & Son, Philadelphia, Pa.
Jones, J. B., & Co., Allegheny, Pa.
Kirk, W. W., Baltimore, Md.
Mallory, J. D., Baltimore, Md.
McCay Engineering Co., Baltimore, Md.
McDonald, A. H., Chicago, Ill.
Mengel Machinery Exchange, Baltimore, Md.
Miller Mfg. Co., Huntington, W. Va.
Mooers Co., H., Milwaukee, Wis.
Nuttall, J., Philadelphia, Pa.
Poulterer & Co., Philadelphia, Pa.
Prentiss Tool & Supply Co., New York, N. Y.
Price Machinery Co., Chicago, Ill.
Rainier & Williams, Chicago, Ill.
Rossiter, MacGovern & Co., New York, N. Y.
Saxton, J. C., New York, N. Y.
Seyfert's, L. F., Sons, Philadelphia, Pa.
Thompson, Son & Co., New York, N. Y.
Toomey, Frank, Philadelphia, Pa.
Torbert & Peckham, Chicago, Ill.
Warren-Burnham Co., New York, N. Y.
Waters, John A., & Co., Richmond, Va.
Wickes Bros., Pittsburg, Pa.
Willebrands, G. W., Detroit, Mich.
Wisconsin Mchy. Co., Milwaukee, Wis.
Wormer, C. C., Mchy. Co., Detroit, Mich.

Machinists' Supplies.
Besly, Chas. H., & Co., Chicago, Ill.

Mail Chutes.
Cutler Mfg. Co., Rochester, N. Y.

Mechanical Draft.
American Blower Co., Detroit, Mich.
Boston Blower Co., Hyde Park, Mass.
Sturtevant Co., B. F., Boston, Mass.

Mercerizing Machinery.
Philadelphia Textile Specialty Mch. Co., Phila., Pa.

Metallic Tubing. (Flexible.)
Flower, Walter L., & Co., St. Louis, Mo.

Metal Laths. (Expanded.)
Associated Expanded Metal Co's of U. S., New York.

Metal-Working Machinery.
American Tool Works Co., Cincinnati, O.
Bertsch & Co., Cambridge City, Ind.
Besley & Co., Chas. H., Chicago, Ill.
Landis Tool Co., Waynesboro, Pa.
Niagara Machine & Tool Works, Niagara Falls, N. Y.
Pratt & Whitney Co., Hartford, Conn.
Robinson & Co., J. M., Cincinnati, O.
Royersford Foundry & Machine Co., Royersford, Pa.
Whiton Machine Co., D. E., New London, Conn.
Wickes Bros. Pittsburg, Pa.

Meters. (Water.)
Pittsburg Meter Co., E. Pittsburg, Pa.

Mill Cogs. (Maple.)
Bowsher Co., N. P., South Bend, Ind.

Mill Engineers and Architects.
Chapman, Wm. A., & Co., Providence, R. I.
Lockwood, Greene & Co., Boston, Mass.
Makepeace, C. R., & Co., Providence, R. I.
Perry, Nathaniel V., Atlanta, Ga.
Praray, C. A. M., & Co., Providence, R. I.
Smith Whaley, W. B., & Co., Columbia, S. C.
Wheeler, McMichael & Co., Charlotte, N. C.

Mill Picks.
Higgins, John C., & Son, Chicago, Ill.

Mill Supplies.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Bailey-Lebbey Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Deisner-Wuerpel Mill Building Co., St. Louis, Mo.
Dodge Mfg. Co., Mishawaka, Ind.
Fairbanks Co., Baltimore, Md.
Gibbes, W. H., & Co., Columbia, S. C.
Lombard Iron Works & Supply Co., Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Schaefer, W. J., & Co., New York, N. Y.

Milling Machines.
American Tool Works Co., Cincinnati, O.

Mineral Wool.
U. S. Mineral Wool Co., New York, N. Y.

Mine Locomotives. (See Locomotive B'ldrs.)

Mining Machinery. (Gold, Copper, etc.)
Bunnell Machinery Co., Chicago, Ill.
Cresson Co., Geo. V., New York, N. Y.
General Concentrates Co., New York, N. Y.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Mecklenburg Iron Works, Charlotte, N.C.
Northern Electric Manufacturing Co., Madison, O.
Rogers Boat, Gauge & Drill Works, The John M., Gloucester City, N. J.
Stanley Electric Manufacturing Co., Pittsfield, Mass.

Mining Screens. [See Screens.]

Mixing Machinery.
Alsing Co., J. R., Inc., Brooklyn, N. Y
Aultman Co., The, Canton, O.
Dunning, W. D., Syracuse, N. Y.
Walker & Elliott, Wilmington, Del.

Mortar Colors.
Chattanooga Paint Co., Chattanooga, Tenn.
French, Saml. H. & Co., Philadelphia, Pa.

Nails. (Wire.)
Ludlow-Saylor Wire Co., The, St Louis, Mo.

Oils.
Adam Cook's Sons, New York, N. Y.
Besley, Chas. H., & Co., Chicago, Ill.
Bonar, James, & Co., Pittsburg, Pa.
Galena Oil Co., Franklin, Pa.
Robinson, Wm. C., & Son, Baltimore, Md.

Oil-Burning Appliances.
Petroleum Iron Works Co., Washington, Pa.
Rockwell Engineering Co., New York, N. Y.

Oilers.
Lunkenheimer Co., Cincinnati, O.

Oiling Systems. (Automatic.)
Siegrist Lubricator Co., St. Louis, Mo.

Oilless Bearings.
North American Metaline Co., Long Island City, N. Y.

Ore-Handling Machinery.
Leschen, A., & Sons Rope Co., St. Louis, Mo.

Packing.
Boston Belting Co., Boston, Mass.
Goodsell Packing Co., Chicago, Ill.
Jenkins Bros., New York, N. Y.
Johns Mfg. Co., H. W., New York, N. Y.
Keasbey & Mattison Co., Ambler, Pa.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York, N. Y.
Rhoads, J. E., & Sons, Wilmington, Del.
Schaefer, W. J., & Co., New York, N. Y.
Textile Mill Supply Co., Charlotte, N. C.

Paint. (Cold Water, etc.)
Bird & Co., J. A. & W., Boston, Mass.
De Ronde, Co., Frank S., New York.
Fairbanks Co., Baltimore, Md.
Fox, M. Ewing, & Co., New York, N. Y
Muralo Co., New Brighton, Borough of Richmond, N.Y.
Muzzy Bros., Paterson, N. J.
Troy Cold Water Kalsomine Co., Troy, N. Y.

Paint. (Roofing, etc.)
Armitage Mfg. Co., The, Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Chattanooga Paint Co., Chattanooga, Tenn.
Colonial Paint & Varnish Co., Cleveland, O.
Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon Crucible Co., Joseph, Jersey City, N. J.
Eastern Granite Roofing Co., Jersey City, N. J.
French, Samuel H., & Co., Philadelphia, Pa.
Garfield Oil Co., Cleveland, O.
Johns Mfg. Co., H. W., New York, N. Y.
Standard Paint Co., New York, N. Y.

Painting Machinery.
Muralo Co., New Brighton, Borough of Richmond, N.Y.
Star Brass Works Co., The, Chicago, Ill.

Paper. (Roofing, Building, Sheathing, etc.)
Armitage Mfg. Co., The, Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Eastern Granite Roofing Co., Jersey City, N. J.
Garrett, C. S., & Son, Philadelphia, Pa.
National Roofing & Supply Co., Louisville, Ky.
Standard Paint Co., The, New York, N. Y.

Paper. (Sand, Emery.)
Baeder, Adamson & Co., Philadelphia, Pa.

Parquetry.
Adams, J. M., Baltimore, Md.

Patent Attorney.
Weatherford & Hildebrand, Memphis, Tenn.

Patterns. (Metal.)
Ryan, J. J., & Co., Chicago, Ill.

Paving Materials.
Charlotte Roofing & Paving Co., Charlotte, N. C
National Roofing & Supply Co., Louisville, Ky.
Robinson Contracting Co., Geo. A., Mobile, Ala
Warren-Ehret Co., Philadelphia, Pa.

Perforated Metal.
Aitchison Perforated Metal Co., Robert, Chicago, Ill.
Besly, Chas. H., & Co., Chicago, Ill.
Harrington & King Perforating Co., Chicago, Ill.
Hendrick Mfg. Co., The, Ltd., Carbondale, Pa.
Littleford Bros., Cincinnati, Ohio.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Mundt, Charles, & Sons, New York, N. Y.

Phosphate Machinery.
Alsing Co., J. R., Inc., Brooklyn, N. Y.
Aultman Co., The, Canton, O.
Bailey-Lebby Co., The, Charleston, S. C.
Bradley Pulverizer Co., Boston, Mass.
Cameron & Barkley Co., Charleston, S. C.
Cresson Co., Geo. V., New York, N. Y.
Foos Mfg. Co., Springfield, O.
Link-Belt Engineering Co., Philadelphia, Pa.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulverizer Co, Chicago, Ill.
Sackett, A. J., Baltimore, Md.
Valk & Murdoch Iron Works, Charleston, S. C.
Walker & Elliott, Wilmington, Del.
West Pulverizing Machine Co., New York, N. Y.

Phosphate Screens. [See Screens.]

Phosphor Bronze. (Wire, Rods, Sheets.)
Ryan, J. J., & Co., Chicago, Ill.
Phosphor Bronze Smelting Co., Ltd., Philadelphia, Pa.

Pig Iron.
Alabama Con. Coal & Iron Co., Birmingham, Ala.

Piling.
New Orleans Wood Preserving Wks., New Orleans, La.

Pillow Blocks.
Dodge Mfg. Co., Mishawaka, Ind.
Cresson Co., Geo. V., New York, N. Y.
Golden's Foundry & Machine Co., Columbus, Ga.

Pipe. (Cast Iron and Steel.)
Dimmick Pipe Co., Birmingham, Ala.
General Fire Extinguisher Co., Providence, R. I.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
U. S. Cast Iron Pipe & Foundry Co., Chattanooga, Tenn.
Wood, R. D., & Co., Philadelphia, Pa.

Pipe. (Coil.)
National Pipe Bending Co., New Haven, Conn.
Simmons, John, Co., New York, N. Y.
Wolf Co., Fred. W., Chicago, Ill.

Pipe. (Cut, Threaded, etc.)
Simmons, John, Co., New York, N. Y.

Pipe. (Lead.)
Robertson Mfg. Co., James, Baltimore, Md.

Pipe. (Straight Riveted.)
Sterling Blower & Pipe Mfg. Co., Hartford, Conn.

Pipe. (Spiral Riveted.)
Abendroth & Root Mfg. Co., New York, N. Y.
American Spiral Pipe Works, Chicago, Ill.

Pipe. (Sewer and Culvert.)
Pomona Terra Cotta Co., Pomona, N. C.
Stevens' Sons Co., H., Macon, Ga.
Warner Co., Chas., Wilmington, Del.

Pipe. (Wrought Iron.)
Davis, The John Co., Chicago, Ill.
Fairbanks Co., Baltimore, Md.
General Fire Extinguisher Co., Providence, R. I.

Pipe. (Unions and Joints.)
Dart Mfg. Co., E. M., Providence, R. I.

Pipe Cutting and Threading Mach.
Columbus Machine Co., Columbus, O.
Saunders' Sons, D., Yonkers, N. Y.

Pipe Fittings.
Davis, The John Co., Chicago, Ill.
General Fire Extinguisher Co., Providence, R. I.
Robertson Mfg. Co., James, Baltimore, Md.
Wolf Co., Fred. W., Chicago, Ill.

Pipe Wrenches.
Atlas Pipe Wrench Co., New York, N. Y.
Williams, J. H., & Co., Brooklyn, N. Y.

Planers.
American Tool Works Co., Cincinnati, O.

Plantation Locomotives. (See Locomotive Builders.)

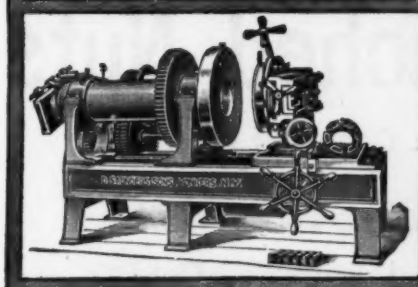
Plaster Ornaments.
French, Samuel H., & Co., Philadelphia, Pa.

Plating. (Nickel.)
Hanson & Van Winkle Co., Newark, N. J.

Plumbers Supplies and Tools.
Robertson Mfg. Co., James, Baltimore, Md.

Plumbago.
Dixon Crucible Co., Joseph, Jersey City, N. J.
Hill & Griffith Co., Cincinnati, O.
Obermayer Co., S., Cincinnati, O.

PIPE THREADING AND CUTTING MACHINERY



40 YEARS EXPERIENCE has enabled us to produce machines which for quality and general excellence are as nearly perfect as can be made.
SEND FOR CATALOGUE.

YONKERS, D. SAUNDERS' SONS NEW YORK

HAVE YOU TRIED WALL'S Everlasting Steel TORCHES and OILERS.
They are Guaranteed. Write
The P. Wall Mfg. Supply Co.
ALLEGHENY, PA.

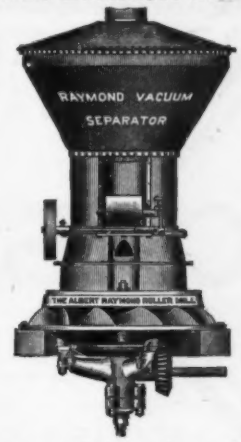
WATCHMAN'S CLOCK
LATEST IMPROVED.
Gives an exact record of the Watchman's doings.
WRITE TO
B. NANZ & CO.
127 Duane Street, NEW YORK.

FOUNDRY EQUIPMENT.
No. 11 Catalogue Now Ready.
J. W. PAXSON CO., PHILADELPHIA, PA.

WE MAKE
CHUCKS
FOR FOOT LATHES. Write us now.
THE D. E. WHITON MACHINE CO., New London, Conn.

RICHMOND HEATERS
Most Heat at Least Cost

AUTOMATIC PULVERIZER
For the Reduction of All
SOFT, HARD and FIBROUS MATERIALS.



Stone and Ore Crushers.
ASK FOR CATALOGUE.
Raymond Bros. Impact Pulverizer Co.,
1402 Monadnock Block, Chicago, Ill., U.S.A

The largest and most reliable Foundry Supply House in the World.
Manufacturers "Everything you need in your Foundry."
THE
S. OBERMAYER CO.
Cincinnati, Ohio, U. S. A.
SPECIALTIES:
Foundry Facings and Blackings,
Pure East India Plumbago, for Dry or Green Sand Molds; Founders' Perfect Core Wash, Stove Plate Facings, Talc and Soapstone.
Foundry Supplies,
Molders' Shovels, Riddles, Brushes, Bellows, Wire Brushes, Bristle Brushes, Snap Flasks, Etc., Etc.
Foundry Equipment,
Cupolas, Ladles, Cranes, Tumbling Mills, Moulding Machines, Etc.
All orders shipped promptly. Best goods at lowest prices. Send for general catalog No. 66.

HARDWOOD FLOORING
of every approved kind
Matched Strips or Inlaid Patterns
in various thicknesses
for old or new buildings
FLOORS
Laid and Polished Complete
in the most thorough manner
J. M. ADAMS
227 N. Charles Street BALTIMORE, MD.

Purchasers of

Cold-Punched Nuts

Do Not Be Deceived by a

"Hot-Pressed Nut"

Chamfered and Trimmed Cold.

HOOPES & TOWNSEND CO.

PHILADELPHIA, PA.

LIGHT STEEL & REFINED MALLEABLE IRON

CASTINGS

of Every Description.

True to Pattern — Uniform Structure — Superior Quality — Great Strength

NORWAY IRON & STEEL CO., York, Pa.

ROSS-MEEHAN FOUNDRY CO.

Chattanooga, Tennessee.

GREY & MALLEABLE IRON FOUNDERS.

M.C.B. COUPLERS.

CASTINGS

STEEL CASTINGS

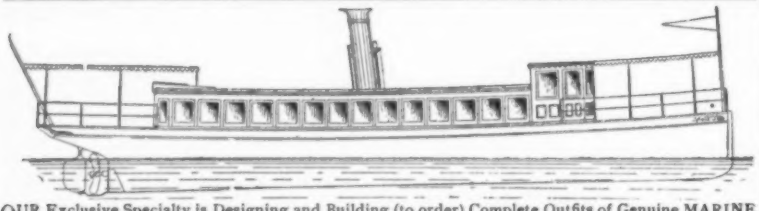
OPEN HEARTH Steel Castings of every description, for Electrical Machinery; Dredging, Rolling and Sugar Mill Machinery; Locomotive, Railroad and Bridge Work, etc.

McHAFFIE Steel Castings of all shapes and sizes, from 1 lb. up. Superior for Crankshafts, Gearing and other purposes where great wearing results are required.

CHESTER STEEL CASTINGS CO.

Works, CHESTER, PA. Office, 407 Sansom St., PHILA., PA.

Correspondence Solicited.



OUR Exclusive Specialty is Designing and Building (to order) Complete Outfits of Genuine MARINE Machinery in Small and Medium Sizes (four to twenty-six inch cylinders). STEAM ONLY.

High-Pressure, Compound, Triple-Expansion and Paddle-Wheel Outfits—Either Wood or Coal - Burning **Marine Boilers.**

Station A. Catalogue Free. Marine Iron Works, Chicago, Ill.

"PROVIDENCE" Best in the World. **CAPSTANS.** WINDLASSES. Built by the

AMERICAN SHIP WINDLASS CO., Providence, R. I.

REG. TRADE MARKS

"Phosphor Bronze" DELTA

THE PHOSPHOR BRONZE SMELTING CO. LIMITED, 2200 WASHINGTON AVE., PHILADELPHIA.

"ELEPHANT BRAND PHOSPHOR-BRONZE"

INGOTS, CASTINGS, WIRE, RODS, SHEETS, ETC.

— DELTA METAL —

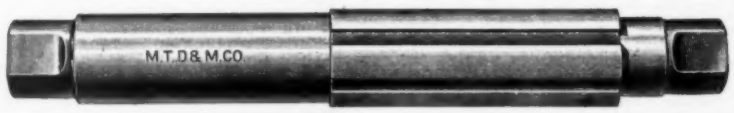
CASTINGS, STAMPINGS AND FORGINGS

ORIGINAL AND SOLE MAKERS IN THE U.S.

MORSE TWIST DRILL AND MACHINE CO.

NEW BEDFORD, MASS., U. S. A.

No. 123A.



The above cut shows an improved Taper Mandrel with Expanding Sleeve. The entire mandrel is hardened and the taper ground. The taper is such that it will hold sleeve and work rigid. The sleeve is of crucible steel and not hardened. It has several longitudinal slots, giving the sleeve greater flexibility. One of the slots is cut through, allowing the sleeve to expand or contract.

BANGOR S EXCELSIOR — L A T E — CELEBRATED ALBION QUARRY

Properly Laid On the Roof of your Home, Church, School, Hotel or Public Buildings will give you more satisfaction than any other.

Costs Nothing to Maintain. Absolutely Fire-Proof. Durable.

OUR BRANDS:

Bangor Excelsior, Star, American Bangor, Albion.

Note our Trade-Marks and insist on getting the original.

Catalogue Free.

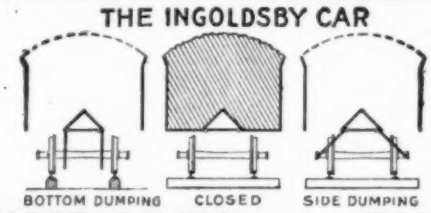
GENUINE BANGOR SLATE CO.

MANUFACTURERS.

MAIN OFFICE: EASTON, PA.

QUARRIES: BANGOR, PA. PEN ARGYLE, PA

THE INGOLDSBY CAR



DUMP CARS THAT DUMP

AND GO BACK INTO EARNING SERVICE

IMMEDIATELY

AND KEEP IN IT ALL THE TIME

CONTROLLED AND SOLD BY

THE INGOLDSBY AUTOMATIC CAR CO.

CHEMICAL BUILDING ST LOUIS, MO.

BRASS FOUNDERS FINISHERS J. J. RYAN & CO.

68-74 West Monroe St., Chicago.

Best Bronze, Babbitt Metals, Brass and Aluminum CASTINGS on Short Notice.

THE WEIR FROG CO. CINCINNATI, O. L.C. WEIR PRES

SOLE MANUFACTURERS OF FRED. C. WEIR'S IMPROVED RIGID & SPRING FROGS, CROSSINGS SINGLE & THREE THROW SPLIT SWITCHES. FIXED & AUTOMATIC SWITCH STANDS. STEEL DIE FORMED RAIL BRACES, SWITCH FIXTURES, ETC

CABLE & ELECTRIC TRACK WORK FROGS, SWITCHES, CROSSINGS, CURVES RAIL CHAIRS ETC

Classified Index of Advertisers.

For Alphabetical Index See Page 29.

Pneumatic Tools. [See Tools, Pneumatic.]

Pneumatic Tubes. (For Handling Cash.)
Bostedo Pneumatic Tube Co., Chicago, Ill.

Power Transmission Machinery.
Caldwell, H. W., & Son Co., Chicago, Ill.
Cresson Co., Geo. V., New York, N. Y.
Dehner-Wuepel Mill Building Co., St. Louis, Mo.
Dodge Mfg. Co., Mishawaka, Ind.
DuBois Iron Works, DuBois, Pa.
Fairmount Machine Co., Philadelphia, Pa.
Hunt Co., C. W., New York, N. Y.
Link-Belt Engineering Co., Philadelphia, Pa.
Northern Electric Mfg. Co., Madison, Wis.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Wood's, T. B., Sons, Chambersburg, Pa.

Presses. (Bailing, Cottonseed Oil etc., Hydraulic and Power.)
Boomer & Boschert Press Co., Syracuse, N. Y.
Bushnell Press Co., G. H., Thompsonville, Conn.
Cardwell Machine Co., Richmond, Va.
Cornell, J. B. & J. M., New York, N. Y.
Valk & Murdoch Iron Works, Charleston, S. C.
Watson-Stillman Co., New York, N. Y.

Presses. (Stamping.)
Leffler, Chas., & Co., Brooklyn, N. Y.
Niagara Machine & Tool Works, Buffalo, N. Y.

Pulleys. (Friction Clutch.)
Cresson Co., Geo. V., New York, N. Y.
Dodge Mfg. Co., Mishawaka, Ind.
Fairmount Machine Co., Philadelphia, Pa.
Morgan Smith Co., S., York, Pa.
Whitman Mfg. Co., New York, N. Y.
Williams, Milton F., & Co., St. Louis, Mo.
Wood's, T. B., Sons, Chambersburg, Pa.

Pulleys. (Wood Split.)
Davis, F. H., & Co., Boston, Mass.
Dawson, A. L., & Co., Chicago, Ill.
Dodge Mfg. Co., Mishawaka, Ind.
Eckhold's Sons, Wm., Philadelphia, Pa.
Fairbanks Co., Baltimore, Md.
Gurney Mfg. Co., Roan Mountain, Tenn.
Ohio Pulley Co., Marion, O.
Saginaw Mfg. Co., Saginaw, Mich.

Pulley. (Pneumatic.)
Williams, Milton F., & Co., St. Louis, Mo.

Pulleys, Shafting and Hangers.
Caldwell, H. W., & Son Co., Chicago, Ill.
Cresson Co., Geo. V., New York, N. Y.
Dodge Mfg. Co., Mishawaka, Ind.
Egan Co., The, Cincinnati, O.
Fairbanks Co., Baltimore, Md.
Fairmount Machine Co., Philadelphia, Pa.
Fay, J. A., & Co., Cincinnati, O.
Finished Steel Co., The, Youngstown, O.
Golden's Foundry & Machine Co., Columbus, Ga.
Greenwald Co., I. & E., Cincinnati, O.
Jeffrey Mfg. Co., The, Columbus, O.
Lane Mfg. Co., Montpelier, Vt.
Link-Belt Engineering Co., Philadelphia, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Maryland Foundry & Machine Co., Baltimore, Md.
Morgan Smith Co., S., York, Pa.
Nordyke & Marmon Co., Indianapolis, Ind.
Pryibil, P., New York, N. Y.
Rhoads, J. E., & Sons, Wilmington, Del.
Schofields, J. S., Sons Co., Macon, Ga.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Textile Mill Supply Co., Charlotte, N. C.
Valley Iron Works, Williamsport, Pa.
Wickes Bros., Pittsburg, Pa.
Wolf Co., Chambersburg, Pa.
Woods', T. B., Sons, Chambersburg, Pa.

Pumps. (Pneumatic.)
Bacon Air Lift Co., New York, N. Y.
Ingersoll-Sergeant Drill Co., New York, N. Y.

Pumps. (Centrifugal.)
Southwark Foundry & Machine Co., Philadelphia, Pa.
Wood & Co., R. D., Philadelphia, Pa.

Pumps. (Power Boiler-Feed.)
Cameron Steam Pump Works, A. S., New York, N. Y.
McGowan Co., John H., Cincinnati, O.
Park Mfg. Co., Charlotte, N. C.
Watson, N. A., Erie, Pa.

Pumps. (Steam.)
Cameron Steam Pump Works, A. S., New York, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Cook Well Co., St. Louis, Mo.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Downie Pump Co., Downieville, Pa.
Gardner Governor Co., Quincy, Ill.
Mason Regulator Co., Boston, Mass.
McGowan, John H., & Co., Cincinnati, O.
Pulsometer Steam Pump Co., New York, N. Y.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Sydnor Pump & Well Co., Richmond, Va.
Textile Mill Supply Co., Charlotte, N. C.
Watson-Stillman Co., New York, N. Y.
Wickes Bros., Pittsburg, Pa.

Pumps. (Trench.)
Edson Manufacturing Co., Boston, Mass.
Union Elevator & Machine Co., Chicago, Ill.

Pumping Machinery.
Bacon Air Lift Co., New York, N. Y.
Cook Well Co., The, St. Louis, Mo.
Dean Bros., Indianapolis, Ind.
Downie Pump Co., Downieville, Pa.
Myers, F. E., & Bro., Ashland, O.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Wood, R. D., & Co., Phila., Pa.

Pump Governor.
Gardner Governor Co., Quincy, Ill.
Mason Regulator Co., Boston, Mass.

Punching and Shearing Machinery.
American Tool Works Co., Cincinnati, O.
Bertsch & Co., Cambridge City, Ind.
Heartley Mch., Variety Iron & Tool Works, Toledo, O.
Long & Allstatter Co., Hamilton, O.
Niagara Machine & Tool Works, Buffalo, N. Y.
Robinson, J. M., & Co., Cincinnati, O.
Royersford Foundry & Machine Co., Royersford, Pa.
Wood, R. D., & Co., Phila., Pa.

Quarry and Stonecutting Machinery.
Ingersoll-Sergeant Drill Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Rand Drill Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

Rack Locomotives. (See Locomotive Bldrs.)

Railroad Equipment and Supplies. (New and Second-hand.)
Bailey-Lebby Co., The, Charleston, S. C.
Benjamin Iron & Steel Co., Buffalo, N. Y.
Birmingham Rail & Locomotive Co., Birmingham, Ala.
Conard, Thos. P., Philadelphia, Pa.
Cox, Jr., Justice, & Co., Ltd., Philadelphia, Pa.
Dallett & Co., Philadelphia, Pa.
Fairbanks Co., Baltimore, Md.
Fitz-Hugh & Co., Chicago, Ill.
Grant & Williams, New York, N. Y.
Hyde Bros. & Co., Pittsburg, Pa.
Johns Mfg. Co., H. W., New York, N. Y.
Jones, J. B., & Co., Allegheny, Pa.
Joseph Iron Co., Isaac, Cincinnati, O.
Kilby Locomotive & Machine Works, Anniston, Ala.
Males Co., Cincinnati, O.
Miller Supply Co., Huntington, W. Va.
May & Spalding, Atlanta, Ga.
New York Equipment Co., New York, N. Y.
Pittsburg Locomotive & Car Works Co., Pittsburg, Pa.
Porter Co., H. K., Pittsburg, Pa.
Poulterer & Co., Philadelphia, Pa.
Robinson & Orr, Pittsburg, Pa.
Southern Iron & Equipment Co., Atlanta, Ga.
Steel Rail Supply Co., The, New York, N. Y.
Watson, Benj., New York, N. Y.
Weir Frog Co., Cincinnati, O.
Zeinicker, W. A., St. Louis, Mo.

Rails. (Steel.)
Males Co., Cincinnati, O.
Steel Rail Supply Co., The, New York, N. Y.

Reamers.
Brubaker, W. L., & Bros., Millersburg, Pa.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Pratt & Whitney Co., Hartford, Conn.
Polk, A. J., & Son, Millersburg, Pa.

Refrigerating Plants. [See Icemaking Machinery.]

Regulators. (Water & Steam Pressure.)
Crosby Steam Gauge & Valve Co., Boston, Mass.
Mason Regulator Co., Boston, Mass.

Regulators. (Damper.)
Mason Regulator Co., Boston, Mass.

Rivets. (Lead.)
Stimpson, Edwin B., & Son, New York, N. Y.

Rock Crushers.
Aultman Co., The, Canton, O.
Austin Mfg. Co., F. C., Harvey, Ill.
Bunnell Machinery Co., Chicago, Ill.
Cresson Co., Geo. V., New York, N. Y.
N. J. Foundry & Machine Co., Plainfield, N. J.

Road Machinery.
Aultman Co., The, Canton, O.
Austin Mfg. Co., F. C., Harvey, Ill.
Bunnell Machinery Co., Chicago, Ill.
Kelly Co., O. S., Springfield, O.
Kilbourne & Jacobs Mfg. Co., Columbus, O.

Roofing. (Felt, Tar, Asphalt, Paper, etc.)
Armitage Mfg. Co., The, Richmond, Va.
Asphalt Ready Roofing Co., New York, N. Y.
Barrett Mfg. Co., Philadelphia, Pa.
Charlotte Roof & Paving Co., Charlotte, N. C.
Eastern Granite Roofing Co., Jersey City, N. J.
Garrett, C. S., & Son, Philadelphia, Pa.
Johns Mfg. Co., H. W., New York, N. Y.
National Roofing & Supply Co., Louisville, Ky.
Robinson Contracting Co., Geo. A., Mobile, Ala.
Standard Paint Co., New York, N. Y.
Stowell Mfg. Co., Jersey City, N. J.
Warren Chemical & Mfg. Co., New York, N. Y.
Warren-Ehret Co., Philadelphia, Pa.

Roofing and Siding. (Metal.)
American Bridge Co., New York, N. Y.
Bartlett, Hayward & Co., Baltimore, Md.
Cortright Metal Roofing Co., Philadelphia, Pa.
Dowman Mfg. Co., Atlanta, Ga.
Merchant & Co., Philadelphia, Pa.
Scaife, Wm. B., & Son, Pittsburg, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.

Roofing and Siding. (See Roofing.)

Roofing. (Metal Shingles.)
Cortright Metal Roofing Co., Philadelphia, Pa.
Merchant & Co., Inc., Philadelphia, Pa.
Montrose Metal Shingle Co., Camden, N. J.

Roofing. (Slate.)
Dowman Mfg. Co., Atlanta, Ga.
Galt, John, & Sons, New York, N. Y.
Genuine Bangor Slate Co., Easton, Pa.
McKenna, David, Slatington, Pa.
Williams, J. R., & Co., Arvonia, Va.

Roofers' and Tinners' Supplies.
Niagara Machine & Tool Works, Buffalo, N. Y.
Merchant & Co., Inc., Philadelphia, Pa.
Robinson, J. M., & Co., Cincinnati, O.

Rope. (Transmission.)
American Mfg. Co., The, New York, N. Y.
Carpenter & Co, George B., Chicago, Ill.
Cresson Co., Geo. V., New York, N. Y.
Dodge Mfg. Co., Mishawaka, Ind.
Hunt Co., C. W., West New Brighton, N. Y.
Leschen, A., & Sons Rope Co., St. Louis, Mo.
Link-Belt Engineering Co., Philadelphia, Pa.
Macomer & Whyte Rope Co., Chicago, Ill.
Morgan Smith Co., S., York, Pa.
Robinson Machine Co., Monongahela, Pa.
Tate, Jones & Co., Pittsburg, Pa.
Woods' Sons, T. B., Chambersburg, Pa.

Rubber Tires. (Vehicle, Automobile, etc.)
Rubber Tire Co., Philadelphia, Pa.

Rubber Goods.
Boston Belting Co., Boston, Mass.
Eureka Fire Hose Co., New York, N. Y.
New Jersey Car Spring & Rubber Co., Jersey City, N. J.
Rhoads, J. E., & Sons, Wilmington, Del.

Sacks. (Fertilizer, etc.)
Bailey, John T., & Co., Philadelphia, Pa.

Safety Water Columns and Gauges.
American Steam Gauge Co., Jamaica Plain, Mass.
Clark Bros. Co., Vicksburg, Mich.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Davis, The John Co., Chicago, Ill.
Lunkenheimer Co., Cincinnati, O.
Reliance Gauge Column Co., Cleveland, O.
Wright Mfg. Co., Detroit, Mich.

Saws. [See Woodworking Machinery.]
Atkins, E. C., & Co., Indianapolis, Ind.
Barnes Co., W. F. & John, Rockford, Ill.
Huther Bros., Rochester, N. Y.

Saw-Mill Machinery.
Alabama Iron Works, Mobile, Ala.
Bailey-Lebby Co., The, Charleston, S. C.
Beach, H. W., Montrose, Pa.
Cameron & Barkley Co., Charleston, S. C.
DuBois Iron Works, DuBois, Pa.
De Loach Mill Mfg. Co., Atlanta, Ga.
Egan Co., The, Cincinnati, O.
Farquhar Co., A. B., Ltd., York, Pa.
Fay, J. A., & Co., Cincinnati, O.
Florida Iron & Wood Works, Apopka, Fla.
Frick Co., Waynesboro, Pa.
Hench & Dromgold, York, Pa.
Lane Mfg. Co., Montpelier, Vt.
Mecklenburg Iron Works, Charlotte, N. C.
Salem Iron Works, Salem, N. C.
Sanders Mfg. Co., Dalton, Ga.
Schofields, J. S., Sons Co., Macon, Ga.
Soule Steam Feed Works, Meridian, Miss.
Southern Eng. & Boiler Works, Jackson, Tenn.
Union Iron Works Co., Selma, Ala.
Wickes Bros., Pittsburg, Pa.

Saw Sharpeners and Files. (Cotton Gin.)
Carver Cotton Gin Co., East Bridgewater, Mass.

Scales. (Railroad, etc.)
Fairbanks Co., Baltimore, Md.
Standard Scale & Supply Co., Ltd., Pittsburg, Pa.

Schools and Colleges.
International Correspondence Schools, Scranton, Pa.

Screens. (Fly, Window and Door.)
Burrowes Co., E. T., Portland, Me.
New Jersey Wire Cloth Co., Trenton, N. J.

Screens. (Ore, Coke, etc.)
Aultman Co., The, Canton, O.
Cresson Co., Geo. V., New York, N. Y.
Harrington & King Perforating Co., Chicago, Ill.
Hendrick Mfg. Co., Ltd., Carbondale, Pa.
Jeffrey Mfg. Co., The, Columbus, O.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.
Myers Mfg. Co., Fred J., Hamilton, O.
Mundt & Sons, Charles, New York, N. Y.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.

Screws. (Machine and Wood.)
Miles, Franklin S., Philadelphia, Pa.

Screw Plates.
Brubaker, W. L., & Bros., Millersburg, Pa.
Polk, A. J., & Son, Millersburg, Pa.

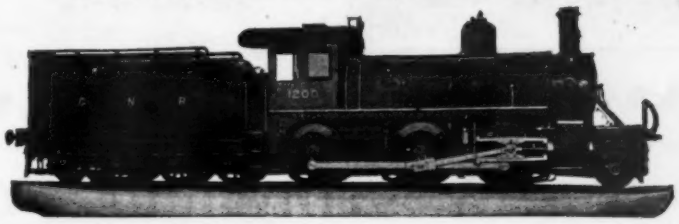
Scroll Saws. [See Woodworking Mchy.]
Barnes Co., W. F. & John, Rockford, Ill.
Egan Co., The, Cincinnati, O.
Fay, J. A., & Co., Cincinnati, O.

Self Measuring Shop Oil Cabinet.
Bowser & Co., S. F., Ft. Wayne, Ind.

Established 1831. Annual Capacity 1,200.

BALDWIN LOCOMOTIVE WORKS,

Single Expansion and Compound Locomotives.



BROAD and NARROW GAUGE LOCOMOTIVES, Mine and Furnace Locomotives Compressed Air Locomotives, Tramway Locomotives, Plantation Locomotives, Oil Burning Locomotives.

ELECTRIC LOCOMOTIVES WITH WESTINGHOUSE MOTORS, ELECTRIC CAR TRUCKS WITH OR WITHOUT MOTORS.

All important parts made accurately to gauges and templates, after standard designs or to railroad companies' drawings. Like parts of different locomotives of same class, perfectly interchangeable.

Cable Address: BALDWIN, PHILADELPHIA.

BURNHAM, WILLIAMS & CO., Philadelphia, Pa., U. S. A.

AMERICAN LOCOMOTIVE COMPANY,

General Offices, 25 Broad St., New York City.

Builders of **Single Expansion and Compound LOCOMOTIVES,** for all classes of service, from original designs or from specifications furnished by purchaser.

Owning and Operating the

Schenectady Locomotive Works, Schenectady, N. Y.
Brooks Locomotive Works, Dunkirk, N. Y.
Pittsburg Locomotive Works, Allegheny, Pa.
Richmond Locomotive Works, Richmond, Va.
Cooke Locomotive Works, Paterson, N. J.
Rhode Island Locomotive Works, Providence R. I.
Dickson Locomotive Works, Scranton, Pa.
Manchester Locomotive Works, Manchester, N. H.

FOR SALE—IMMEDIATE DELIVERY.

1 Standard Gauge Logging Locomotive, weight 20 tons, with 1200 gallon tender and steam driver brake.
1 Standard Gauge, 23-ton four driver, Saddle-Tank Shifting Locomotive.
Both the above are new engines just completed, and of latest design and best quality.
Also under way for quick completion 36-in. gauge Saddle-Tank Locomotives, 8½ and 12½ tons weight, and 1 Standard Gauge 40-ton Shifting Engine.

H. K. PORTER CO.

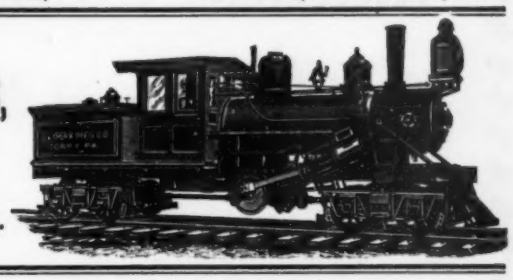
Builders of Light Locomotives, 6th Avenue, PITTSBURGH, PA.

CLIMAX Geared Locomotives,

For Wood or Iron Rail.

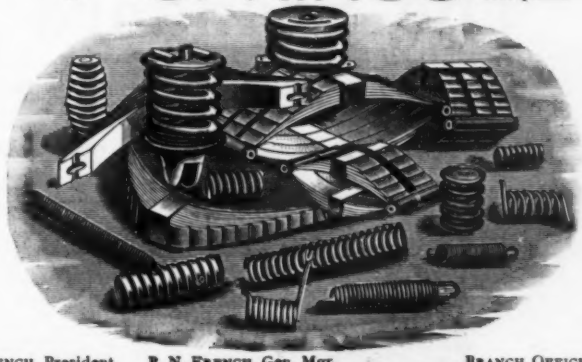
Send for Illustrated Catalog.

CLIMAX MFG. CO. CORRY, PA.



A. FRENCH SPRING CO., PITTSBURGH, PA.

Manufacturers of **SPRINGS** of every description.



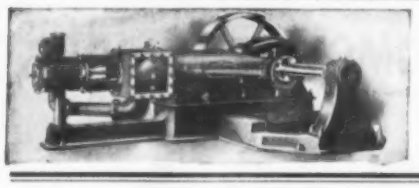
Aaron French, President. P. N. French, Gen. Mgr.
J. E. French, Vice-Prest. D. C. Noble, Sec. & Treas.
John Proven, Superintendent.

Branch Offices: NEW YORK, 1608 Empire Building; CHICAGO, 1414 Fisher Building.

Latrobe Steel and Coupler Company,

Manufacturers of **CHICAGO ALL-STEEL AUTOMATIC COUPLER.**

Works: Melrose Park, Ill. Branch Office: 1720 Old Colony B'd'g, Chicago.
Main Office: 1200 Girard Bld'g, PHILADELPHIA.



MEDIUM AND HIGH SPEED **ENGINES.**

HIGHEST EFFICIENCY.
BEST CONSTRUCTION.

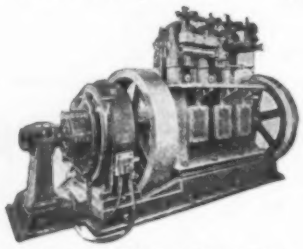
THE BALL ENGINE CO.

CHICAGO OFFICE: 1526 MONADNOCK BUILDING. Gold Medal, Paris, 1900. ERIE PENNSYLVANIA.

Westinghouse, Church, Kerr & Co.

Engineers,

New York, Chicago, Boston, Pittsburg, Philadelphia, Detroit.



Westinghouse 3-Cylinder Gas Engine Installed.

Westinghouse Junior, Standard, Compound and Corliss Steam Engines, Gas Engines, Roney Mechanical Stokers, Steam Turbines, etc., etc.

SELL THE PRODUCT OF

The Westinghouse Machine Co.,

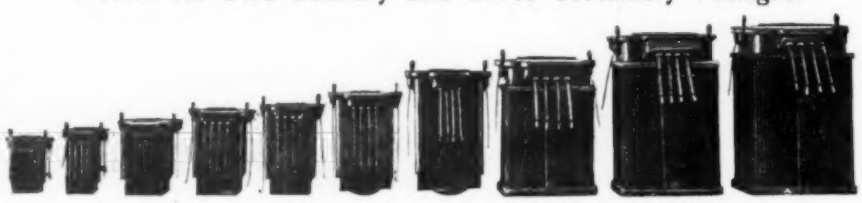
Pittsburg—**Manufacturers**—Chicago.

Write nearest office of Westinghouse, Church, Kerr & Co.

Westinghouse O. D. Transformers

Wound for Two Primary and Three Secondary Voltages.

These transformers excel all others, both in electrical performance and mechanical design.



Different parts of all transformers of same capacity are identical and interchangeable.

The Name Westinghouse is a Guarantee.

Westinghouse Electric

& Mfg. Co., Pittsburg, Pa.

All principal cities in U. S. and Canada.

Compressed Air Brakes for Street Cars.

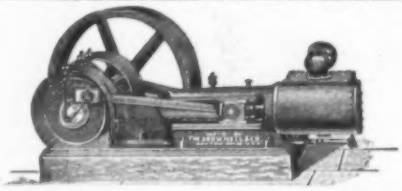
This Compressor Operates Without Noise.

Endorsed by all Progressive Street Railway Managers.

The Standard Traction Brake Co.

120 Liberty Street, New York.

59-12



Boilers and Engines,

HEATERS AND TANKS.

Manufactured by **THE BROWNELL & COMPANY, DAYTON, OHIO.** P. O. Box 912.

The Greensboro Supply Co., Greensboro, N. C., Selling Agts. for N. & S. Carolina & Georgia.

Atlas Engine Works.

P. O. Box 720. *Indianapolis.*

Harrisburg

Harrisburg Foundry & Machine Works, **Engines**

HARRISBURG, PA., U. S. A.

Classified Index of Advertisers.

For Alphabetical Index See Page 29.

Separators. (Dust.)
Allington & Curtis Mfg. Co., Saginaw, Mich.
Sterling Blower & Pipe Mfg. Co., Hartford, Conn.
Sturtevant Co., B. F., Boston, Mass.

Separators. (Steam and Oil.)
American Tool Works Co., Cincinnati, O.
Austin Separator Co., Detroit, Mich.
Bonar, James, & Co., Pittsburg, Pa.
Harrison Safety Boiler Works, Philadelphia, Pa.

Shapers.
American Tool Works Co., Cincinnati, O.

Sheet-Metal-Working Machinery. [See Metal-Working Machinery.

Sheet Steel and Iron.
American Sheet Steel Co., New York, N. Y.

Shingle, Lath and Stave Machinery. [See Woodworking Machinery.]
Lane Mfg. Co., Montpelier, Vt.
Trevor Mfg. Co., Lockport, N. Y.

Ship Builders. (Iron and Steel)
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.

Skylights.
Badger, E. B., & Sons Co., Boston, Mass.
Dowman Mfg. Co., Atlanta, Ga.
Merchant & Co., Inc., Philadelphia, Pa.
National Skylight & Construction Co., New York, N.Y.
Noorden Co., E. Van, Boston, Mass.

Slate. (Roofing and Blackboard.)
Galt, John, & Sons, New York, N. Y.
Genuine Bangor Slate Co., Easton, Pa.
David McKenna, Slatington, Pa.
Williams, J. R., & Co., Arvonia, Va.

Slaters' Tools.
Galt, John, & Sons, New York, N. Y.

Smoke Stacks. (Iron and Steel.)
Hammond Iron Works, Warren, Pa.
Keeler, E., Co., Williamsport, Pa.
Littleford Bros., Cincinnati, Ohio.
Schofields, J. S, Sons Co., Macon, Ga.
York Mfg. Co., York, Pa.

Soapmakers' and Butchers' Mchy.
Dopp, H. Wm., & Son, Buffalo, N. Y.

Solder.
Hiertz, Theo., & Son, St. Louis, Mo.
Ryan, J. J., & Co., Chicago, Ill.

Speaking Tubes.
Besly, Chas. H., & Co., Chicago, Ill.

Springs. (Bicycle Saddle, Machinery, Railway and Spiral.)
Besly, Chas. H., & Co, Chicago, Ill.
Boston Belting Co., Boston, Mass.
Cary Spring Works, New York, N. Y.
French Spring Co., A., Pittsburg, Pa.
Latrobe Steel & Coupler Co., Philadelphia, Pa.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.

Spelter.
Hiertz, Theo., & Son, St. Louis, Mo.

Sprinklers. (Automatic.) [See Fire Extinguishers.]

Stairways. (Iron.)
Lykes, John D., Birmingham, Ala.

Stamp Mills.
Mecklenburg Iron Works, Charlotte, N. C.

Standpipes.
Birmingham Boiler Works, Birmingham, Ala.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Means & Fulton Iron Works, Birmingham, Ala.
Virginia Bridge & Iron Co., Roanoke, Va.
York Mfg. Co., York, Pa.

Steam Gages.
Crosby St. Gage & Valve Co., Boston, Mass.
Lunkenheimer Co., Cincinnati, O.

Steam Fitters and Supplies.
General Fire Extinguisher Co., Providence, R. I.

Steam Heating.
General Fire Extinguisher Co., Providence, R. I.
Keeler Co., E., Williamsport, Pa.
Peck-Hammond Co., The, Cincinnati, O.
Warren Webster & Co., Camden, N. J.

Steam Shovels. [See Dredges and Excavators.]

Steam Traps.
American Blower Co., Detroit, Mich.
Bonar, James, & Co., Pittsburg, Pa.
Davis, The John Co., Chicago, Ill.
Eureka Iron Co., Chicago, Ill.
Haines Co., W. S., Philadelphia, Pa.
Mason Regulator Co., Boston, Mass.
Sturtevant Co., B. F., Boston, Mass.
Wright Mfg. Co., Detroit, Mich.

Steamship Lines.
Atlantic Transport Co., Baltimore, Md.
Bay Line, Baltimore, Md.
Merchants & Miners' Trans. Co., Baltimore, Md.
Richmond & York River Line, Baltimore, Md.

Steel. (Manufacturers of.)
Acme Steel & Malleable Iron Works, Buffalo, N. Y.
American Sheet Steel Co., New York, Y.
Chester Steel Castings Co., Philadelphia, Pa.
Latrobe Steel Co., Philadelphia, Pa.

Steel Couplers. (Automatic.)
Latrobe Steel & Coupler Co., Philadelphia, Pa.

Steel Hoops, Bands.
American Steel Hoop Co., New York, N. Y.

Steel Rods. (Polished.)
Finished Steel Co., The, Youngtown, O.

Stokers. (Mechanical.)
Westinghouse Machine Co., Pittsburg, Pa.

Stoves, Ranges, etc.
Hutchinson Bros., Baltimore, Md.

Street Lamps.
Dietz Co., R. E., New York, N. Y.

Structural Steel and Iron.
American Bridge Co., New York, N. Y.
American Steel Hoop Co., New York, N. Y.
Bartlett, Hayward & Co., Baltimore, Md.
Belmont Iron Works, Philadelphia, Pa.
Columbia Bridge Co., Pittsburg, Pa.
Girard Boiler & Mfg. Co., Girard, O.
Morrison & Kindervater Richmond, Va.
National Skylight & Construction Co., New York, N. Y.
Scaife, Wm. B., & Sons., Pittsburg, Pa.
Schreiber L., & Sons Co., The, Cincinnati, O.
Virginia Bridge & Iron Co., Roanoke, Va.

Studs, Nuts.
Hoopes & Townsend Co., Philadelphia, Pa.
Miles, Franklin S., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.

Sugar-Mill Machinery.
Morris, Henry G., Philadelphia, Pa.
Wolf Co., Fred. W., Chicago, Ill.

Switchboards, Switches, etc.
General Incandescent Arc Light Co., New York, N. Y.
Smith, Sam'l J., & Co., Charlotte, N. C.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Tanks. (Iron and Steel.)
Bartlett, Hayward & Co., Baltimore, Md.
Birmingham Boiler Works, Birmingham, Ala.
Caldwell, Co, W. E, Louisville, Ky.
Clarendon Boiler Works, N. Clarendon, Pa.
Gem City Boiler Co., Dayton, O.
Girard Boiler & Mfg. Co, Girard, O.
Harry Brothers Co., Dallax, Tex.
Hartley Boiler Works, Montgomery, Ala.
Hazelton Boiler Co., New York, N. Y.
Keeler Co., E., Williamsport, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Littleford Bros., Cincinnati, O.
Means & Fulton Iron Works, Birmingham, Ala.
Petroleum Iron Works Co., Washington, Pa.
Scaife, Wm. B., & Sons, Pittsburg, Pa.
Smith Co., S. Morgan, York, Pa.
Valk & Murdoch Iron Works, Charleston, S. C.
Virginia Bridge & Iron Co., Roanoke, Va.
Wolf Co., Fred. W., Chicago, Ill.
Wood, R. D, & Co., Phila., Pa.
York Mfg. Co., York, Pa.

Tanks. (Wood.)
Caldwell, Co., W. E., Louisville, Ky.
Cypress Lumber Co., Apalachicola, Fla.
Davis, G. M., & Son, Palatka, Fla.
Flint & Walling Mfg. Co., Kendallville, Ind.
Lewis, H. F., & Co., Ltd., New Orleans, La.
Woolford Wood Tank Mfg. Co., G., Philadelphia, Pa.

Telephones. (Supplies, Equipment.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
Bunnell, J. H., & Co., New York, N. Y.
Chesapeake Electric Co., Baltimore, Md.
Western Electrical Supply Co., St. Louis, Mo.

Telegraph Instruments, & Supplies.
Bunnell, J. H., & Co., New York, N. Y.

Telephone Poles.
New Orleans Wood Preserving Wks., New Orleans, Pa.
Tennessee Lumber Co., Lewisburg, Tenn.

Terne Plate.
Merchant & Co., Inc., Philadelphia, Pa.

Terra Cotta.
Pomona Terra Cotta Co., Pomona, N. C.
Warner Co, Charles, Wilmington, Del.

Textile Machinery [See Cotton Mill Mach.]

Tinplate.
Merchant & Co., Inc., Philadelphia, Pa.

Tires, Steel. (Locomotive and Car.)
Latrobe Steel Co., Philadelphia, Pa.

Tobacco Machinery.
Buckeye Iron & Brass Works, Dayton, O.
Cardwell Machine Co., Richmond, Va.

Tools. (Machinists' and Mechanics'.)
American Tool Works Co., Cincinnati, O.
Besly, Chas. H., & Co., Chicago, Ill.
Landis Tool Co., Waynesboro, Pa.
McCabe, J. J., New York, N. Y.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Pratt & Whitney Co., Hartford, Conn.
Williams, J. H., & Co., Brooklyn, N. Y.

Tools. (Pnuematic.)
Schaefer, W. J., & Co., New York, N. Y.

Tools. (Tinners'.)
Niagara Machine & Tool Works, Buffalo, N. Y.

Tote Boxes.
Clark Co., W. J., Salem, O.

Towers. (Steel and Wood.)
Caldwell, Co., W. E., Louisville, Ky.

Towns.
Cedartown Company, Philadelphia, Pa.
Old Dominion Land Co. Newport News, Va.
Wheeling Board of Trade, Wheeling, W. Va.

Tramway. (Overhead.)
Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.
Speidel, J. G., Reading, Pa.

Tramway. (Wire Rope.)
Aultman Co., Canton, O.
Caldwell, H. W., & Sons Co., Chicago, Ill.
Oregon Co., Geo. V., New York, N. Y.
Hunt Co., C. W., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Leschen, A., & Sons Rope Co., St. Louis, Mo.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Engineering Co., Nicetown (Phila.), Pa.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Trenton Iron Co., Trenton, N. J.

Tube Cleaners.
Paxson Co., J. W., Philadelphia, Pa.

Tubing.
Besly, Chas. H., & Co., Chicago, Ill.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.

Turbines. [See Water Wheels.]

Turntables.
Dodge Mfg. Co., Mishawaka, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.

Valves.
American Steam Gauge Co., Jamaica Plain, Mass.
Automatic Reducing Valve Co., Chicago, Ill.
Boston Belting Co., Boston, Mass.
Crosby Steam Gage & Valve Co., Boston, Mass.
Croslen Mfg. Co, Chicago, Ill
Davis, The John, Co., Chicago, Ill.
Fairbanks Co., Baltimore, Md.
Gardner Governor Co., Quincy, Ill.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Jenkins Bros., New York, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Co., Cincinnati, O.
Mason Regulator Co., Boston, Mass.
Mueller Mfg. Co., H., Decatur, Ill.
Sweet & Doyle, Cohoes, N. Y.
Wolf, Fred. W., & Co., Chicago, Ill.
Wood, R. D., & Co., Philadelphia, Pa.

Veneer Machines.
Coe Mfg. Co., The, Painesville, O.
Titus, E. E., Petersburg, Va.

Ventilators.
Dowman Mfg. Co., Atlanta, Ga.
Pancoast International Ventilator Co., Philadelp'a, Pa.
Van Noorden Co., E., Boston, Mass.

Vises.
Emmert Mfg. Co., Waynesboro, Pa.

Wagon Builders' Mchy. & Supplies.
Cordesman, Meyer & Co., Cincinnati, O.
Egan Co., The, Cincinnati, O.
Fay, J. A., & Co., Cincinnati, O.

Washers. (Ore and Phosphate.)
Aultman Co., The, Canton, O.
Bailey Lebby Co., The, Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
George Foundry & Machine Works, Rome, Ga.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.

Watchman's Clocks.
Besly, Chas. H., & Co., Chicago, Ill.
Nanz & Co., New York, N. Y.
Textile Mill Supply Co., Charlotte, N. C.

Water and Electric Power.
Roanoke Nav. & Water-Power Co., Weldon, N. C.

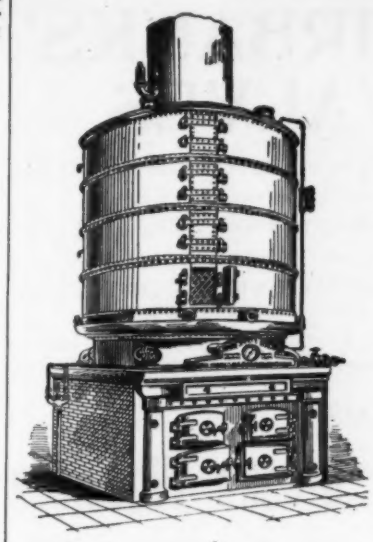
Water Softening Apparatus. (Purifying.)
Industrial Water Co., New York, N. Y.
Kennicott Water Softener Co., Chicago, Ill.
Scaife, Wm. B., & Sons, Pittsburg, Pa.

Water-Wheels and Turbines.
Alcott, T. C., & Son, Mt. Holly, N. J.
Lane Mfg. Co., Montpelier, Vt.
Leffel, James, & Co., Springfield, O.
Smith Co., S. Morgan, York, Pa.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
York Mfg. Co., York, Pa.

Water Meters.
Pittsburg Meter Co., E. Pittsburg, Pa.

Water Troughs. (Steel.)
Clarendon Boiler Works, N. Clarendon, Pa.

Water-Works and Sewerage.
Flint & Walling Mfg. Co., Kendallville, Ind.
Nicol, Baur & Foster, Mobile, Ala.
Weatherford & Hilderbrand, Memphis, Tenn.
Wood, R. D., & Co., Philadelphia, Pa.



STEAM-POWER MANUFACTURERS.

BERRY SAFETY BOILERS,

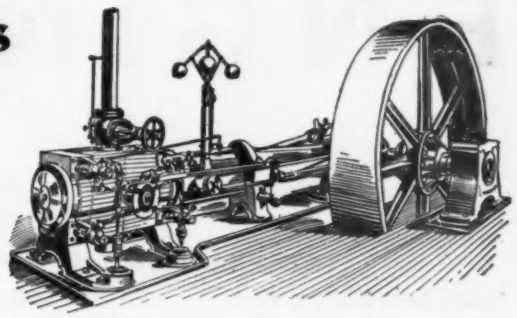
60, 100, 150, 200, 250, 300 and 350 H. P.

Economizes space, fuel, maintenance and first cost to a greater degree than any other boiler. Combines simplicity and durability. Estimates and catalogue upon application.

Corliss Steam Engines,

High-Pressure or Condensing.

Corliss Compound Steam Engines.



Corliss Engines for Direct Connected Generators.

High-Duty Compound Pumping Engines, for Public Water Supply.

ROBT. WETHERILL & CO.

CHESTER, PA.

The Ball & Wood Company,

OFFICE: 120 Liberty St., New York.

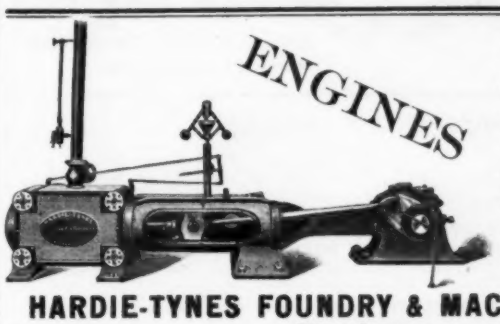
WORKS: Elizabeth, N. J.

Designers and Builders of

High-Grade Improved Engines

For Any Service.

Our catalogue describes the Ball & Wood type of four-valve, Simple, Cross and Tandem Compound Engines, Vertical or Horizontal, for Belted or Direct Connected service. It will be sent on application.



CORLISS AND SLIDE VALVE ENGINES, HOISTING ENGINES, AIR COMPRESSORS, DREDGE MACHINERY, COMPLETE POWER PLANTS A SPECIALTY.

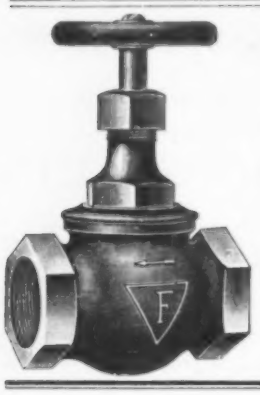
HARDIE-TYNES FOUNDRY & MACHINE COMPANY,

Box 406, Manufacturers, Birmingham, Ala.

SOUTHWARK FOUNDRY & MACHINE CO.

PHILADELPHIA, PA.

Porter-Allen Automatic Engines,
Blowing Engines, Centrifugal Pumps,
Weiss Counter-Current Condensers.



FAIRBANKS' VALVES

All Services. All Pressures.

Globes with Renewable Vulcanized Asbestos Disc.
Gates with Renewable Seat Rings.
Checks, Straightway Swinging.

Asbestos Packed Cocks. New Supply Catalogue on Application.

THE FAIRBANKS COMPANY
BALTIMORE, MD.

Scales, Supplies, Machinery, Trucks, Gas and Gasoline Engines.

ORIGINAL

Geo. H. Corliss and Greene-Wheelock

ENGINES

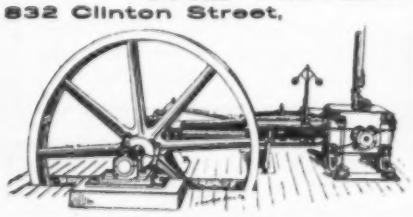
THE LARGEST EXCLUSIVE ENGINE WORKS IN THE COUNTRY.

WE HOLD THE World's Economy Record FOR COMPOUND CONDENSING MILL ENGINES.

INTERNATIONAL POWER CO.

Operating Corliss Steam Eng. Works, PROVIDENCE, R. I., U.S.A.

THE VILTER MFG. CO.,
832 Clinton Street, Milwaukee, Wis.



Improved Corliss Engines,

Boilers, Heaters, Condensers, Pumps, Ice Machines.

NEWPORT NEWS

Shipbuilding and Dry Dock Co.

WORKS AT NEWPORT NEWS, VA.
(ON HAMPTON ROADS.)

Equipped with a Simpson Basin Dry Dock, capable of docking a vessel 600 feet long, drawing twenty-five feet of water, at any stage of the tide.

Repairs made promptly and at reasonable rates.

SHIP AND ENGINE BUILDERS.

For estimates and further particulars address,

C. B. ORCUTT, President,
No. 1 BROADWAY, NEW YORK.

Boilers and Engines.

Smoke Stacks, Steel Tanks, Steam Pumps, Feed Water Heaters.

COMPLETE STEAM PLANTS.

EDWARD W. PHILLIPS,
Mfr's Agent and Contractor, No. 337 Equitable Bld'g, BALTIMORE, MD.

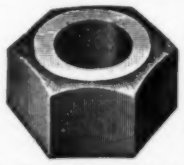
McIntosh & Seymour

Engines,

Mill Engines, Electric Light Engines,
Electric Railway Engines,
All Types, Sizes and Speeds.

McINTOSH, SEYMOUR & CO.,
AUBURN, N. Y.
26 Cortlandt St., NEW YORK, N. Y.

Cold Punched Nuts!

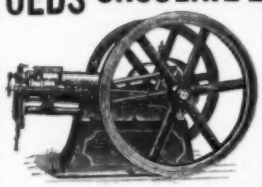


We want your trade in Cold Punched Nuts—Plain, Chamfered, Trimmed and Reamed, Finished and Semi-Finished.

They are made of *Double Refined Bar Iron*, true to size and well finished. It will pay you to get our prices.

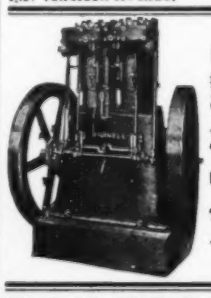
The Milton Mfg. Co., Milton, Pa.

OLDS GASOLINE ENGINES



are remarkable for their ECONOMY and DURABILITY. Notice how few parts. Send for catalogue and learn why it is the best.

OLDS MOTOR WORKS,
1327 Iefferson Avenue, DETROIT, MICH.



"CORNELL"
Gas & Gasoline Engines

from 3 to 60 h. p., for Electric Lighting and Gen'l Power Purposes. Write for Special advertising prices on first engine.

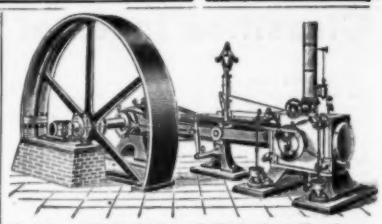
Manufactured by
ELLINGTON MFG. CO.,
Successors to
THE CORNELL MCH. CO.,
CHICAGO, ILL.

"Light & Heavy Blacksmith Forgings solicited."

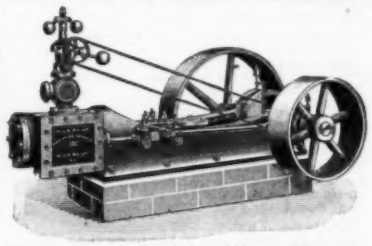
BOILERS AND ENGINES.

Tanks, Stacks, Stand Pipes and Sheet Iron Work; Shafting, Pulleys, Gearing, Boxes, Hangers, etc. Mill Castings.
Cast every day; work 180 hands.

LOMBARD IRON WORKS & SUPPLY CO.
AUGUSTA, GEORGIA.



Corliss, Slide Valve & Hoisting Engines,
BOILERS OF ALL STYLES AND SIZES.
THE MURRAY IRON WORKS CO.
BURLINGTON, IOWA.
Incorporated February 1, 1870.



Manufactured in Nine Sizes—
5 to 80 Horse Power.
HIGH POINT MACHINE WORKS,
HIGH POINT, N. C.

SMITH-COURTNEY CO.

Richmond, Va.

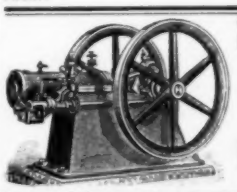
SOUTHERN AGENTS FOR THE

Improved Bates Corliss Engine

FROM 50 TO 1000 HORSE-POWER.

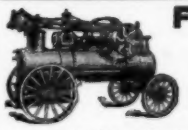
THE ENGINE for Cotton Mills and Large Factories.

Also full line of Engines, Boilers, Iron and Woodworking Machinery and Pumps. Largest stock of Railroad, Mine and Mill Supplies in the South.



Gas and Gasoline Engines—embody new and important departures in design and operation. Send for catalog "G."

COLUMBUS MACHINE CO.
Columbus, Ohio.



FARQUHAR

Engines
Boilers
Saw Mills,
Threshing Machinery.

Send for Illustrated Catalogue.

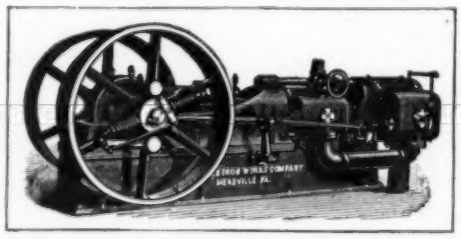
A. B. FARQUHAR CO., Ltd. YORK, PA

PHOENIX IRON WORKS CO. MEADVILLE, PA., U. S. A.

...BUILDERS...

Dick & Church Automatic Cut-Off Engines

Simple, Compound AND Triple Expansion.



Belted, Direct Connected. 50 to 800 Horse Power.

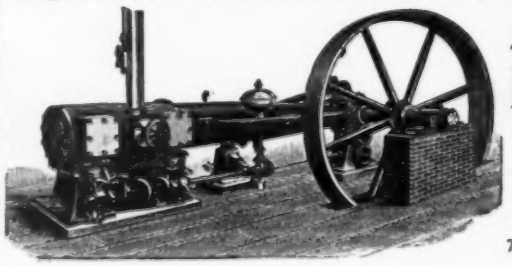
HIGH GRADE BOILERS OF VARIOUS TYPES.

Complete Power Plants a Specialty.

Southern Representative, EDWARD W. PHILLIPS, 337 Equitable Bldg., BALTIMORE, MD.

NEW YORK—15 Cortlandt St.
CHICAGO—1105 Rookery.

THE I. & E. GREENWALD CO.,
Engineers, Founders, Machinists and Millwrights.



Steam Engines,

Shafting, Hangers, Pulleys, Sprocket Wheels, Chains, Etc. Headquarters for Mill Gearing of all kinds and sizes. Steam Power Plants Complete.

WRITE FOR CATALOGUE.

720 E. Pearl St., CINCINNATI, O.

Classified Index of Advertisers.

For Alphabetical Index See Page 29.

Weighing Machine. (Automatic.)
N. E. Automatic Weighing Machine Co., Boston, Mass.

Well Contractors. (Oil, Artesian, etc.)
Andrews, Perry, & Bro., Atlanta Ga.
Austin Mfg. Co., F. C., Harvey, Ill.
Bacon Air Lift Co., New York, N. Y.
Cook Well Co., St. Louis, Mo.
Gould, F. M., Richmond, Va.
Hughes Specialty Well Drilling Co., Charleston, S. C.
Sydnor Pump & Well Co., Inc., Richmond, Va

Well Drillers. [See Well Tools and Supplies.]

Well Tools and Supplies. (Artesian.)
Austin Mfg. Co., F. C., Harvey, Ill.
Bacon Air Lift Co., New York, N. Y
Cook Well Co., The, St. Louis, Mo.
Gould, F. M., Richmond, Va.
Hughes Specialty Well Drilling Co., Charleston, S. C.
Loomis & Nyman, Tiffin, O.
Perry Andrews & Co., Atlanta, Ga.
Sydnor Pump & Well Co., Inc., Richmond, Va.
Williams Bros., Ithaca, N. Y.

Wheelbarrows and Trucks.
Jackson Mfg. Co., Harrisburg, Pa.
Kilbourne & Jacobs Mfg. Co., Columbus, O.

Whistles. (Chimes, Sirens, etc.)
American Steam Gauge Co., Jamaica Plain, Mass.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Lunkenheimer Co., Cincinnati, O.

White Lead.
French, Samuel H., & Co., Philadelphia, Pa.

Windlasses.
American Ship Windlass Co., Providence, R. I.

Windmills.
Flint & Walling Mfg. Co., Kendallville, Ind.

Window Guards. (Wire.) [See Wire Goods.]

Window Frames & Sashes. (Metallic.)
Badger, E. B., & Sons, Boston, Mass.
Smith-Warren Co., East Cambridge, Mass.

Wire Cloth. (Iron, Steel, Brass, etc.)
Burger Iron & Wire Works Co., Akron, O.
Caldwell, H. W., & Sons, Chicago, Ill.
Meyers, Fred. J., Mfg. Co., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Goods.
Balderston, H., & Son, Baltimore, Md.
Belles Iron & Wire Works, J. E., Detroit, Mich
Burger Iron & Wire Works Co., Akron, O.
Dow Wire Works Co., Louisville, Ky.
Dufur & Co., Baltimore, Md.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Meyers Mfg. Co., The Fred J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J

Wire Netting.
Chandlee Fence Co., Baltimore, Md.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Rope Thimbles.
Jackson Mfg. Co., Harrisburg, Pa.

Wire, Barbed Wire, etc.
Beely, Chas. H., & Co., Chicago, Ill.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.

Wire Rope.
Contractors' Plant Mfg. Co. Buffalo, N. Y.
Fairbanks Co., Baltimore, Md.
Hazard Mfg. Co., Wilkes Barre, Pa.
Leschen, A., & Sons Rope Co., St. Louis, Mo.
Lidgerwood Mfg. Co., New York, N. Y.
Macomer & Whyte Rope Co., Chicago, Ill.
Roebling's, John A., Sons Co., Trenton, N. J.
Trenton Iron Co., Trenton, N. J.

Wire-Rope Tramways. [See Tramways.] (Wire Rope.)

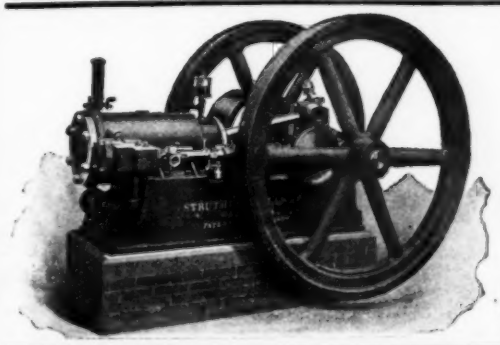
Wrenches. (Drop Forged.)
Atlas Pipe Wrench Co., New York, N. Y.
Williams, J. H., & Co., Brooklyn, N. Y.

Woodsplitting Machines.
Trevor Mfg. Co., Lockport, N. Y.

Woodworking Machinery.
Chattanooga Machinery Co., Chattanooga, Tenn.
Chicago Knife Works, Chicago, Ill.
Coe Mfg. Co., The, Painesville, O.
Cordesman, Meyer & Co., Cincinnati, O.
DeLoach Mill Mfg. Co., Atlanta, Ga.
DuBois Iron Works, DuBois, Pa.
Egan Co., The, Cincinnati, O.
Fay, J. A., & Co., Cincinnati, O.
Frank Machinery Co., The, Buffalo, N. Y.
Gibbes, W. H., & Co., Columbia, S. C.
Greaves, Klusman & Co., Cincinnati, O.
Huther Bros, Rochester, N. Y.
Lane Mfg. Co., Montpelier, Vt.
Root, B. M., York, Pa.
Shiner, Samuel J., & Sons, Milton, Pa.
Smith Machine Co., H. B., Smithville, N. J.
Trevor Mfg. Co., Lockport, N. Y.

Zinc.
Merchant & Co., Inc., Philadelphia, Pa
New Jersey Zinc Co., New York, N. Y

Warren Gas and Gasoline ENGINE



SIMPLE.
ECONOMICAL.
DURABLE.

MANUFACTURED BY

Struthers, Wells & Co.

WARREN, PA.

N. Y. Office, 26 Cortlandt St.
Phila. Office, Fidelity Mutual Bldg.
Baltimore Office, 110 S. Howard St

STILL MORE REASONS
why you should use our
Light Vertical Automatic Engines
in your power plant, ice factory, creamery, or to run your blowers and fans. Our engines have
Forged Steel Cranks, Piston Valve, Perfect Automatic Governors, Marine Connecting Rods.
We build the best engines at the lowest price. Catalog "E" and prices are yours for the asking.

WM. E. HILL & CO.

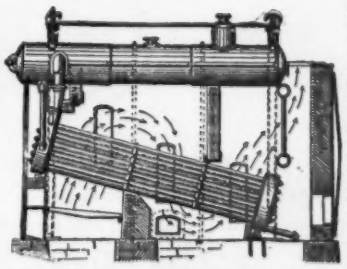
North Park Street, Kalamazoo, Michigan.

OUR EXHIBIT at the PAN-AMERICAN occupies SPACE 42, Machinery and Transportation Bldg. Besides our regular line, we show two or three NEW productions. It is a LIVE EXHIBIT and worth a visit. LOOK FOR US at BUFFALO.

THE OTTO GAS ENGINE WORKS,
PHILADELPHIA, PA.

Representatives for Virginia and the Carolinas, SMITH-COURTNEY CO., Richmond, Va.

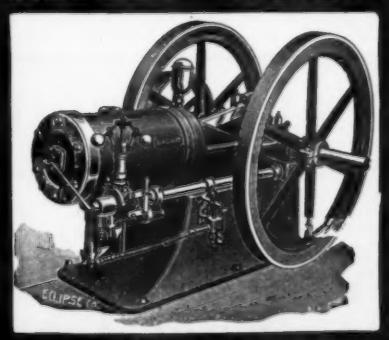
HAMMOND
Water-Tube Boiler.



Valuable improvements over other Water-Tube Boilers are embodied in the design and construction of the Hammond.
Send for Illustrated Catalogue.
We also build Stacks, Stills, Agitators, Filters, Etc.
HAMMOND IRON WORKS, Warren, Pa.
New York Office, 85-89 Liberty St.

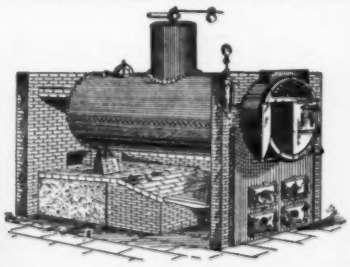
THE "BLAKESLEE" GAS AND GASOLINE ENGINE

SIMPLE AND ECONOMICAL



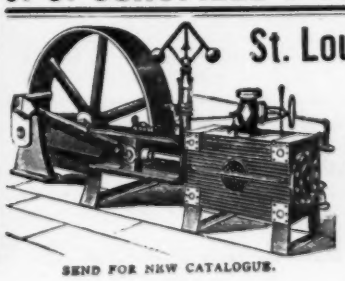
RELIABLE AND DURABLE

SEND A POSTAL FOR OUR BOOKLET.
THE BLAKESLEE CO.
BIRMINGHAM, ALA., U. S. A.



Engines, Boilers, Smoke Stacks, Tanks,
Injectors, Inspirators, Saw Mill Machinery, Shafting, Pulleys, Hangers, Etc.

J. S. SCHOFIELD'S SONS CO., MACON, GA.



SEND FOR NEW CATALOGUE.

St. Louis Iron & Machine Works,
100 Chouteau St., ST. LOUIS, MO.
BUILDERS OF
St. Louis Corliss Engine.
50 to 2000 H. P.
Brick Machinery.

WHY not use the **BEST?** it is Cheaper.

Write to

E. M. DART MFG. CO.
Providence, R. I.

DYNAMOS
10 K. W.—500 K. W.

ENGINES
10 H. P.—1000 H. P.

For every service

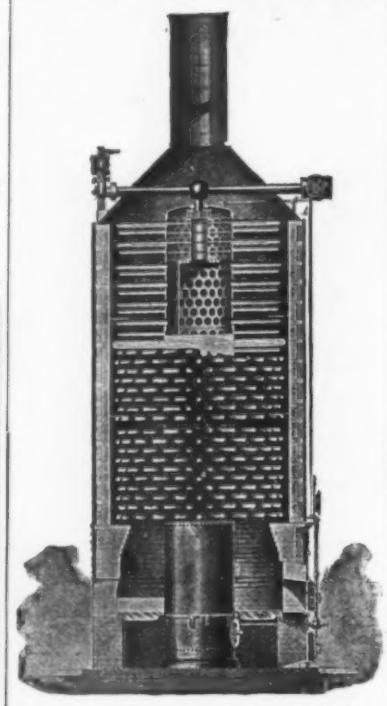
McCLAVE, HAMILTON & RIMMER,
85-89 Liberty St., New York.

Birmingham Boiler Works.

Builders of Stand Pipes, Tanks, Stacks, Ore, Coal and Coke, Buggies, Laries, Lumber Trucks, Tram Cars. A large stock of new and second-hand Boilers, cheap.

WM. CRELIN, Proprietor,
Ave. A, Powell ave. and 24th st., Birmingham, Ala.

A SPACE SAVING BOILER



A Hazelton Water Tube High Pressure Boiler

occupies less floor space per horse power than any other boiler in the world.

It has the greatest amount of heating surface per horse power—11½ square feet.

Not only does it save money by its durability but by the great results given by a minimum of fuel.

We also make Stacks, Tanks and miscellaneous Metal Work.

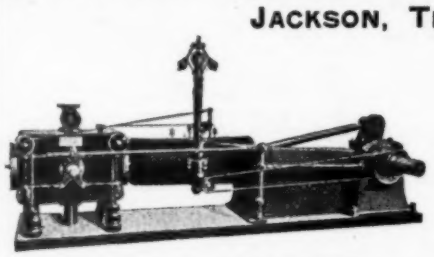
THE HAZELTON BOILER CO.
120 Liberty St., NEW YORK.

Cable Address, "Paila," N. Y.
Telephone, 4124 Cortlandt.

SOUTHERN ENGINE & BOILER WORKS,

JACKSON, TENN.

—Builders of—



Corliss Engines,

Slide-Valve Engines, Tubular Boilers and Saw-Mill Machinery.

"THE BERRYMAN"

Feed-Water Heater and Purifier

PROVIDED WITH U-SHAPED TUBES.

It Never Leaks.

"THE HIGHEST GRADE ONLY."

Our Catalogue contains the representative names of a large number of contented buyers of

BERRYMAN HEATERS

built by us in last twenty years.

For Prices, Catalogue and Particulars apply

JAMES BERRYMAN,
125 N. 4th St, PHILADELPHIA, PA.

I. B. DAVIS & SONS, Makers,
HARTFORD, CONN.

Incorporated 1866. Charter Perpetual.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO. HARTFORD, CONN.

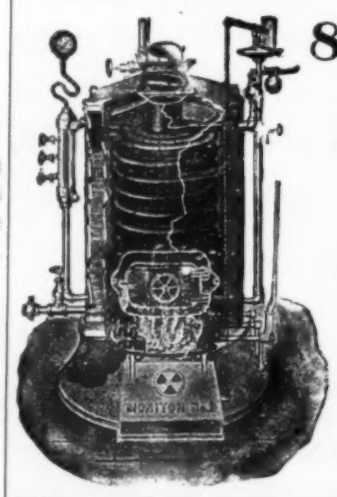
Issues Policies of Insurance after a careful Inspection of the Boilers, Covering all Loss or Damage to Boilers, Buildings and Machinery, and Damage Resulting from Loss of Life and Personal Injuries Caused by Steam Boiler Explosions.

Full information concerning the plan of the Company's operations can be obtained at the

COMPANY'S OFFICE, HARTFORD, CONN., or at any Agency.

J. M. ALLEN, President. W. B. FRANKLIN, Vice-Prest. F. B. ALLEN, 2d Vice-Prest.
J. B. PIERCE, Sec. L. B. BRAINERD, Treas. L. F. MIDDLEBROOK, Asst. Sec.

GENERAL AGENTS IN THE SOUTH.		OFFICES.
LAWFORD & McKIM,	BALTIMORE, MD.,	Chamber Commerce.
C. C. GARDINER,	ST. LOUIS, MO.,	319 N. Fourth Street.
LOUIS V. CLARK & CO.,	BIRMINGHAM, ALA.,	2021 First Avenue.
W. S. HASTIE & SON,	CHARLESTON, S. C.,	44 Broad Stseet.
PETER F. PESCUD,	NEW ORLEANS, LA.,	8.8 Gravier Street.



81% SAVED in One Year $65.00

in cost of fuel by using a

Monitor Wrougt Iron Coil Boiler.

Gentlemen—With your boiler it has taken less than 10 tons of coal, at $1.50 per ton, to heat my house through this unusually cold winter; whereas the boiler I had in three previous mild winters, took from 18 to 20 tons per winter; price, $4.00 per ton.

Yours truly, N. W. STROUP, M. D., ELIZABETHVILLE, PA.

Many testimonials and full description in our Catalogue sent free. Estimates furnished.

Monitor Steam Generator Mfg. Co.

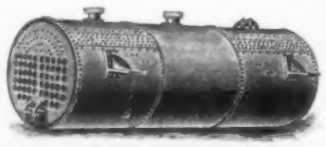
Office and Salesroom: Park Ave. & Fayette Sts.,

U. J. Bossler, Mgr. **Baltimore, Md.**

Home Office and Factory: Landisville, Pa.

BOILERS, TANKS, PENSTOCKS, FEED WATER HEATERS,

General Steel Plate Construction.



GEM CITY BOILER CO., Dayton, Ohio.

BOILERS

With Rivet Holes Drilled after Plates are Bent and in Position, Tanks and Sheet Iron Works, Engines, Cotton Gins and Presses. Machinery for Fertilizer Works and Phosphate Washers, Asbestos Magnesia Pipe Covering and Magnesia Cement Felting for Boilers, Domes, Steam Piping, etc.

VALK & MURDOCH IRON WORKS, Charleston, S. C.

HEINE SAFETY BOILER CO.

421 OLIVE STREET, ST. LOUIS, MO.

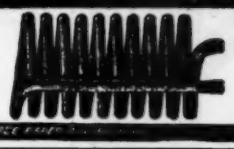
Safe, Economical, Durable,

Water Tube Boilers.

SHOPS AT

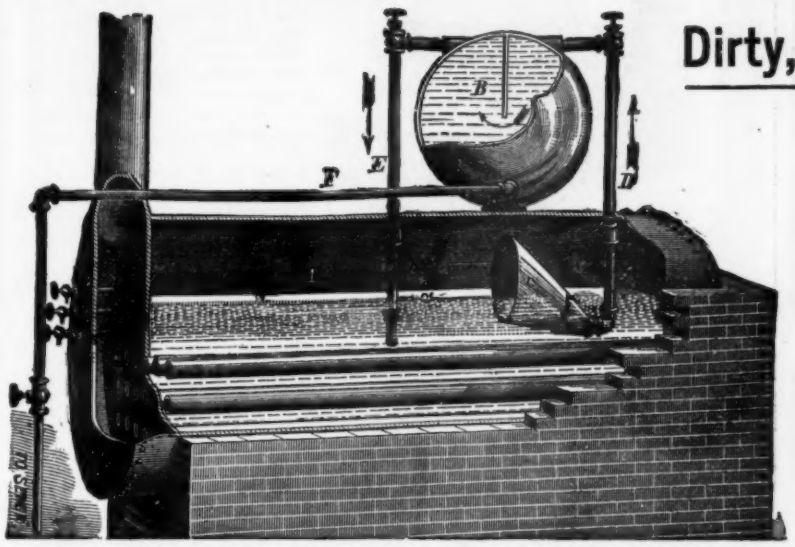
Phoenixville, Pa. St. Louis, Mo. Chicago, Ill.

COILS of **Iron, Brass & Copper Pipe.**
Send for Catalogue.



The National Pipe Bending Co.
97 Lloyd St.
New Haven, Conn.

BENDS



Dirty, Scaly, Foaming BOILERS

Kept Clean Without Compounds or Scraping by the

Hotchkiss Mechanical Boiler Cleaner.

Removes all impurities from the water while steam is forming. PREVENTS FOAMING. ENTIRELY AUTOMATIC and saves time of cleaning, cost of compound, and saves fuel. FIRST COST IS WHOLE COST. Can't get out of order and outlasts the boiler. Thousands are in use all over the world.

AMONG THE MANY USERS ARE:

AMERICAN SUGAR REFINING CO.,	WHO HAVE	126.	
CARNEGIE CUS.	" "	40.	
READING IRON WORKS,	" "	32.	
W. M. CARPENTER. HAVANA,	WHO HAS	30.	
SPUYTEN DUYVIL ROLLING MILL,	WHO HAVE	30.	
STANDARD OIL CO.,	" "	24.	
BROOKLYN WATER WORKS,	" "	16.	
HECKER FLOUR MILLS,	WHO HAVE,	14.	
NORTH CHICAGO ROLLING MILLS,	" "	11	
ANACONDA MINING CO.,	" "	10.	
AUGUST FULLER. CARDENAS,	WHO HAS	10.	
ARMOUR & CO., WHO HAVE,		8	
ELGIN WATCH CO.,	"	6	
HELENA SMELTING CO. WHO HAVE,		6.	

Send for Free Book, **How To Keep Boilers Clean.**

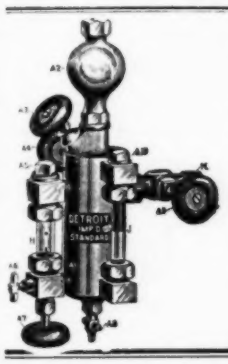
LEONARD & McCOY. 161 Washington Street. NEW YORK CITY, N. Y.

SIEGRIST AUTOMATIC OILING SYSTEM

(PATENTED)

Have closed Contracts since January, 1900, to July 1st, to equip 37 Plants. We have never failed to receive order to equip all new units installed. We are saving one Company $450.00 a month, the others in proportion. We will refund all money paid if apparatus does not operate successfully. You cannot ask more, so if you will investigate, we will receive your order.

Address Makers. SIEGRIST LUBRICATOR COMPANY, ST. LOUIS, U. S. A.



THE DETROIT SIGHT FEED LUBRICATORS

possess all the improvements and good features that have been suggested by our own and our customers' experience during the past 20 years.

They are being used by more than nine-tenths of the prominent American engine builders, who are good judges of lubricators. Many of these have used them continuously for more than 15 years.

There are more than 550,000 Detroit Sight Feed Lubricators in use, or more than all other styles combined.

Use the Detroit Lubricators and you will be in good company. Our New Catalogue, showing our full line, will be sent on application.

GLASS BODY OIL PUMPS.

DETROIT LUBRICATOR CO., DETROIT, MICH.

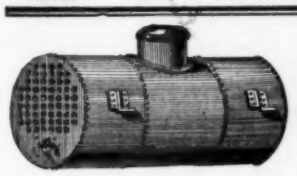
THE GEM OIL BURNER

BEST ON THE MARKET.

We furnish complete equipments for Burning Oil—the new fuel for the South and West. We manufacture

BOILERS, TANKS
of any size for any purpose.
STACKS AND STANDPIPES.

The Petroleum Iron Works Co.
Main Office and Works—Washington, Pa. Branch—Corsicana, Texas.



HARTLEY'S BOILER WORKS,

Boilers, Stand Pipes, Tanks,

Smoke Stacks, etc., etc. MONTGOMERY, ALA.

McCLAVE'S Improved GRATE and ARGAND STEAM BLOWER These appliances combine valuable features for burning the smaller sizes of hard and soft coal, such as Anthracite Culm, Birdseye, Buckwheat and Bituminous Slack, while the Grate Alone stands unequalled for Burning the larger sizes of these fuels with natural draught. The Argand Blower gives EXCELLENT RESULTS in burning Spent Tan, Sawdust, Bagasse, etc. For full particulars send for Illustrated Descriptive Catalogue C.
For Boiler and other furnaces.
McCLAVE, BROOKS & CO., Scranton, Pa.

STEAM BOILER

Inspeicton and Insurance.

Boilers do explode and cause damage to property and sometimes destroy life or cause personal injury.

Inspections carefully made tend to prevent explosion, and insurance provides indemnity against loss by explosion.

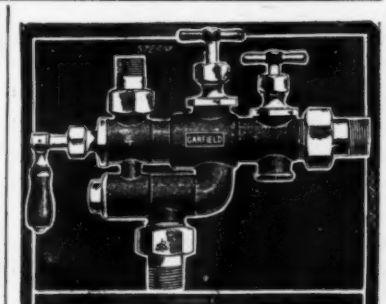
MARYLAND CASUALTY COMPANY,
Home Office, BALTIMORE,
furnishes the best inspection service that good salaries and careful selection of men can provide. Adjusts and pays losses immediately.
SURPLUS TO POLICYHOLDERS, - - $1,468,000.00.

BOILERS

and COMPLETE POWER PLANTS, STACKS, EXHAUST STEAM HEATING, etc

E. KEELER CO., Williamsport, Pa.
Send for Catalog.

JOHN D. LYKES,
Foundry and Machine Shop.
Wrought and Cast Iron Grills, Grain Troughs, Hay Racks, Iron Stairways and Architectural Iron Work. BIRMINGHAM, ALA.



The Garfield Double Jet INJECTOR.

A Stationary Boiler Injector that is in a class by itself. It's perfect.

Send for complete Injector Catalog.

The Ohio Injector Co.
Wadsworth, Ohio.

What is the Temperature of your Boiler Feed-Water?

Do you, Mr. Steam Plant Owner, know this? Mighty few owners, or even their engineers, know for a fact exactly what temperature the water has, just before it enters their boilers.

Engine indicators are worth what they cost, and yet such a little thing as a thermometer (which can be bought for a couple of dollars) may tell you a tale of loss in the coal pile double or treble what the indicator could save you! You ought to find out the temperature, for it is an excellent index as to whether one item of your expense account (your fuel cost) is wholly necessary, or part waste.

If you have exhaust steam for heating your boiler feed-water the temperature of the latter ought to be about 210 degrees. For every 10 degrees that its temperature is below this it means that over 1 per cent. of your fuel is being wasted. If it is only 160 degrees, it means over 6 per cent.! If such a loss does exist you can stop it by buying one of our COCHRANE FEED-WATER HEATERS, and the saving will pay for the Heater in a very short time.

Is it not, therefore of interest to find out what your feed-water temperature actually is?

Don't assume, because the pipe "feels hot" that you are getting the full temperature; or that, because you have a heater, you are saving all that is possible—the heater might be inefficient, or it may not be large enough, owing to the growth of your plant.

Our catalogue will tell you of other advantages of the COCHRANE HEATERS.

Harrison Safety Boiler Works,
Allegheny Ave. and 17th St.,
PHILADELPHIA, PA.

INTERNATIONAL BOILER COMPOUND CO. Established 1882.
MANUFACTURERS OF
Solid, Liquid and Powdered Boiler Compound,
Prevents Corrosions and Incrustations, Removes Scale, Preserves the Iron, Increases Capacity of Boiler and saves 15 to 60 per cent in Fuel.
Satisfaction Guaranteed. Trial Orders Solicited. Write for Prices.
Manufacturers of the INTERNATIONAL COMPOUND FEEDER. | **47 MARKET ST., CHICAGO.**

The Wright Improved Safety Water Column

gives fullest measure of satisfaction always. The name is a guarantee of first-class material and workmanship, absolute safety and certainty.

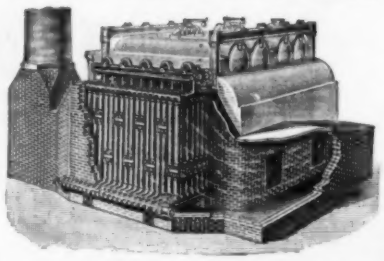
The Wright Emergency Steam Trap,

a wasteless trap of wonderful capacity.
Particulars of the above sent on request.

WRIGHT MANUFACTURING CO.
29 Shelby-cor. Woodbridge. *DETROIT, MICH.*

INCREASED STEAM GENERATING CAPACITY.

The Green's Economizer



As a boiler adjunct will not only increase its steam generating capacity, but will decrease repairs. The reserve water heated to 250 degrees prevents unequal expansion and contraction, thus prolonging the life of the boilers and preventing necessity for repairs. See our booklet, "Green's Economizer."

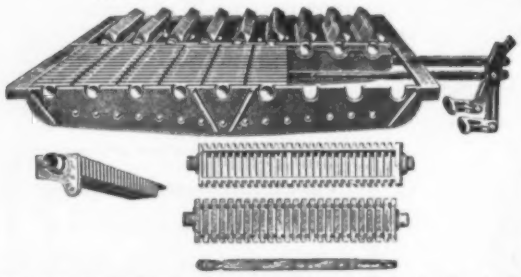
Fuel Bill Decreased 10 to 20 Per Ct.

The Green Fuel Economizer Co.,

Sole Manufacturers in the U. S. A. MATTEAWAN, N. Y.

FURNACE GRATES, DURABLE. ECONOMICAL.

KELLY V GRATE.



10 to 20 PER CENT. MORE AIR SPACE in

KELLY IMPROVED GRATE

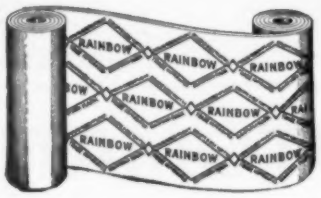
Than Any Grate Made.

Kelly Rocker Grates

Require no alteration in furnace. Simply taking the place of any ordinary Grate.
Very easily set. Is both Rocking and Dumping.

KELLY FOUNDRY & MACHINE CO., 8 Purl Street, GOSHEN, IND.

THE BEST FLANGE PACKING MADE.



Rainbow Packing.

THE COLOR OF RAINBOW PACKING IS RED.

Three rows of Diamonds in Black throughout the length of each and every roll. No baking or following up.

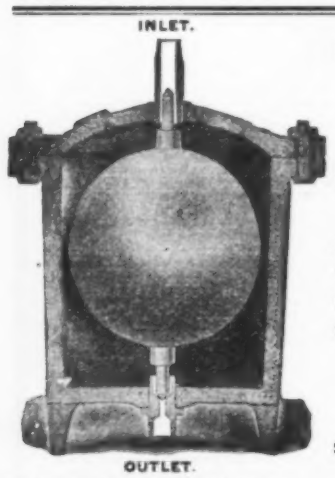
Thousands of Imitators. No Equal.
Will Hold Highest Pressure.
Don't have to use wire and cloth to hold RAINBOW.
Can't Blow it Out.

Manufactured, Patented and Copyrighted Exclusively by

The Peerless Rubber Mfg. Co.

16 Warren Street, NEW YORK.

16-24 Woodward Ave., Detroit, Mich. 400-412 Common St., 201-207 Tschoupitoulas St., New Orleans, La. 210-214 N. Third St., St. Louis, Mo., 171 Main St., Norfolk, Va. 804 W. Gervais St., Columbia, S. C. 202-210 S. Water St., Chicago, Ill. 709-711 Austin Ave., Waco, Tex. 51-53-55 College St., Charlotte, N. C. Ninth and Cary Sts., Richmond, Va. 1212 Farnham St., Omaha, Neb. 17-23 Beale St. and 18-24 Main St., San Francisco, Cal. 125 Congress St., West, Savannah, Ga. 634 Smithfield St., Pittsburgh, Pa. 1601 to 1615 17th St., Denver, Col. 220 S. Fifth St., Philadelphia, Pa.



An order for a Eureka Steam Trap is a stop loss order.

CHASSELL, MICH., March 24, 1901.

EUREKA IRON CO.

Dear Sirs: I desire to state that the Eureka Steam Trap sold us last spring is "Eureka" indeed. It has handled the condensation of 540 ft. of 6″ pipe and has never wasted an ounce of steam.

Respectfully,
WALTER W. WARNER, Engineer,
Sturgeon River Lumber Co.

Send for Catalogue.

EUREKA IRON CO., 7 W. Randolph St., CHICAGO.

American Patent Marine Pop Valve. Board of Trade Pattern.

Gauges that Gauge. Indicators that Indicate. Pops that Pop.

ORIGINAL AND ONLY GENUINE THOMPSON INDICATOR.

Clocks, Revolution Counters, Whistles, and all kinds of Steamship Instruments.

American Steam Gauge & Valve Mfg. Co.

NEW YORK. Address Factory, Jamaica Plain, Boston, Mass. CHICAGO.

WAINWRIGHT

ARE MADE BY THE TAUNTON LOCOMOTIVE MFG. CO.—TAUNTON MASS.

FEED WATER HEATERS.
SURFACE CONDENSERS.
EXPANSION JOINTS.

Filters More Oil

and filters it right—the great filtering capacity of the

Acme Oil Filter

recommends it to all—a practical money-saver that should be in every engine room
Write us for particulars.

Walter L. Flower & Co.

311 Chemical Building, St. Louis, Mo.

FEED WATER HEATERS BY MAIL

Selling Feed Water Heaters BY MAIL is our specialty.

18 years as sellers and manufacturers is the price we have paid for our experience. Our improved machinery and methods for manufacturing greatly REDUCES THE COST AND YOU GET THE BENEFIT OF IT.

THE IMPROVED BERRYMAN (KELLEY'S PATENT) WATER TUBE

FEED WATER HEATER AND PURIFIER

This heater is designed with special reference to obtaining highest results and greatest durability. All materials are of a quality and weight to successfully withstand years of usage, and workmanship is of the highest grade.

Benj. F. Kelley & Son
MANUFACTURERS
91 Liberty St., New York.

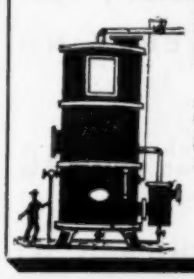
THE MEANS & FULTON IRON WORKS

RO. PRESTON MEANS, PRES.
JOHN H. MEANS, VICE-PRES.
W. M. FULTON, MANAGER

OFFICE & WORKS 4TH ST. AND 8TH AVE. NORTH, BIRMINGHAM, ALA.
MANUFACTURERS AND BUILDERS OF BOILERS, TANKS, STANDPIPES AND BLAST FURNACES, AND WORKERS IN SHEET IRON AND STEEL. ESTIMATES FURNISHED ON STRUCTURAL WORK.

ADDRESS BOX 363 BIRMINGHAM, ALA.

THE "Pittsburgh"



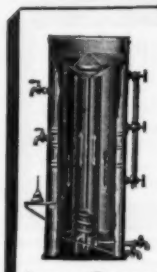
Feed Water Heaters

(OPEN OR CLOSED)

are simple, practical and up-to-date. Over 500,000 H. P. in use. Carnegie Co. has 56,500 H. P.

THE Hawley Down-Draft Furnace Co.

ATLANTA, GA.



BONAR OIL FILTERS

FOR ALL PURPOSES.

You should see our Gravity Filter (see cut), no waste or any kind of filteri g material needed. Sent on 30 days trial.

James Bonar & Co., Pittsburg, Pa.

"The STERLING"

EXHAUST SYSTEMS,

Fans, Dust Collectors, Automatic Furnace Feeders, Galvanized Steel Piping, Blast Gates, etc.

Sterling Blower and Pipe Mfg. Co.

HARTFORD, CONN.

New York Office, 85 Liberty Street.
Boston Office, 53 State St.

☞Write for Quotations.

PIPE HEAD

Prevents the rotting of roofs and walls.

USE THE

Clark Regulator Alarm Column

FOR SAFETY AND ECONOMY.

The Clark Bros. Co.

VICKSBURG, MICH.

Anti-Friction Metal

FOR ALL PURPOSES.
QUALITY THE BEST.

Humboldt Metal Works,
So. Somerville, N. J.

Steel Smoke Stacks,

Water and Oil Tanks,
Sprinkling Wagon Tanks,
Oil Wagon Tanks,
Spark Arresters,

EXHAUST PIPES,

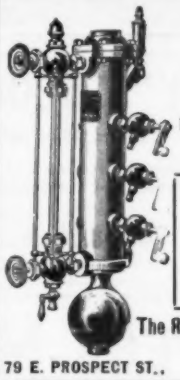
COAL AND ORE CARS,

COAL, ORE AND STONE SCREENS.

PERFORATED METALS, SPECIAL SHEET STEEL AND IRON WORK.

LITTLEFORD BROS.
453, 455, 457 E. Pearl St.,
Cincinnati, Ohio.

RELIANCE



Safety Water Columns

Save Fuel, Repairs, Stoppages.
ECONOMY.
SAFETY.

We urge our patrons to see that the name "Reliance" is cast on all columns. No other person or corporation is authorized to manufacture Reliance Steam Specialties.

The Reliance Gauge Column Co.
SOLE MFRS.,
79 E. PROSPECT ST., CLEVELAND, O.

Contractor's Plant Mfg. Co., Ltd.

MANUFACTURERS OF

STEAM, HORSE and HAND POWER

Hoisting Machines

DERRICK IRON and CONTRACTORS' SUPPLIES.
MANUFACTURERS OF WIRE ROPE.

129 Erie Street, Buffalo, N. Y.

Mention this Journal.

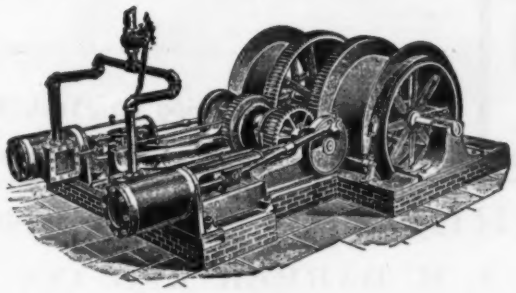
Steel and Malleable Castings.

True to Pattern. Quality Unsurpassed.
Steel will harden like Tool Steel.

ACME STEEL & MALLEABLE IRON WORKS,
BUFFALO, N. Y.

HOISTING MACHINERY

Double-Drum, Positive Acting Tail-Rope Haulage Engine.

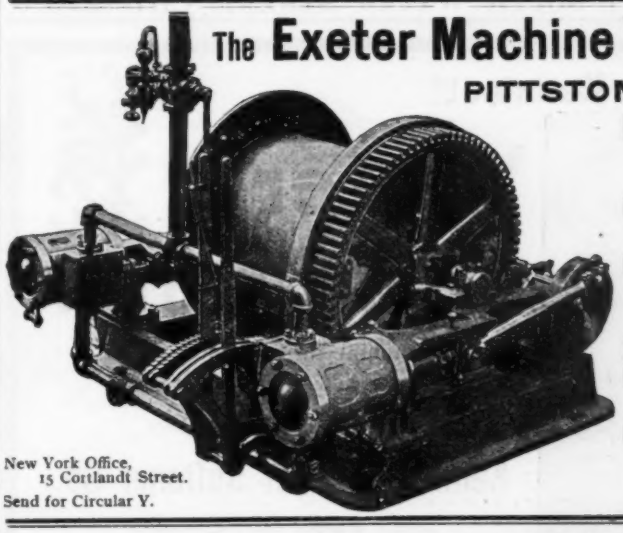


Engines are of the latest improved design, with or without link motion. The drums have heavy cast iron flanges. Each drum is keyed to its own shaft and revolves independently of the other, and is bolted to gear wheel by a bolt through each arm as shown in cut, relieving the shaft, gear and drum arms of all torsional strain. Full particulars and information on application.

ROBINSON MACHINE CO

FOUNDERS & MACHINISTS

MONONGAHELA, PA.



The Exeter Machine Works

PITTSTON, PA.

Hoisting Engines FOR Contractors and Mines.
Coal Handling Machinery FOR Power Houses, Coal Yards and Mines.
Cable and Automatic Railways.

New York Office,
15 Cortlandt Street.
Send for Circular Y.

THE ROBINSON OILS

"they lubricate more, and outlast other oils."

High-Grade,
Cyclinder, Engine, Spindle, Dynamo Oils.

Oils for all types of Machinery.

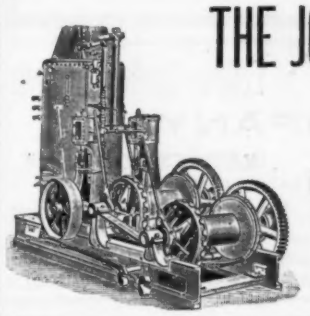
GREASES.

WM. C. ROBINSON & SON,
217 South Street, BALTIMORE, MD.

ALBANY GREASE

LUBRICATES EVERYTHING.

ONLY MADE BY ADAM COOK'S SONS, 313 West Street, New York City, U. S. A.
Branch, 31 S. Canal Street, Chicago, Ill.
See special ad. 1st issue each month



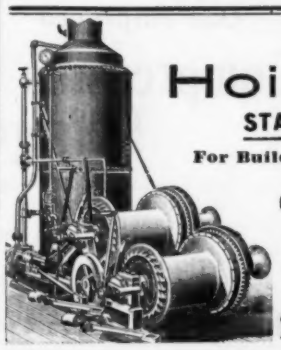
THE JOHN F. BYERS MACHINE CO.

RAVENNA, OHIO.

Manufacturers of

Hoisting Engines, Locomotives, Derrick Cars, Derrick Irons, Etc.

Write for Catalogue "F."



LIDGERWOOD

Hoisting Engines,

STANDARD FOR QUALITY AND DUTY.

For Building Purposes, Pile Driving, Excavating, Etc.

OVER 17,500 IN USE.

Cableways, Hoisting and Conveying Devices for Mining, Quarrying, Steam Logging, etc.

Send for Latest Catalogue.

LIDGERWOOD MFG. CO.

96 LIBERTY STREET, NEW YORK.

Chicago. Atlanta. Cleveland. Boston. Philadelphia. New Orleans. Portland, Ore. Pittsburg.

The Test of Time.

We have been building machinery for Ice-Making and Refrigeration for years.

We have always built the best machinery that we knew how to build. We have been improving on it year after year, and the result of our experience and study is the YORK MACHINE.

It is efficient, durable and economical, and is absolutely guaranteed to do the work that is specified.

The ice-making machines which we put in years ago are just as good today. They are just as satisfactory, just as productive of good results, and the necessary machinery has never been an item of expense.

We built as good machinery then as we do now, only not so improved.

Our work stands the test of time.

If you are interested in machinery of this kind, our Catalogue will interest you.

York Manufacturing Co., York, Pa.

THE **LINDE**

ICE MAKING AND REFRIGERATING

MACHINE.

AMMONIA CONDENSERS. FITTINGS. DIRECT EXPANSION BRINE **PIPING.**

CATALOGS CHEERFULLY SENT ON APPLICATION.

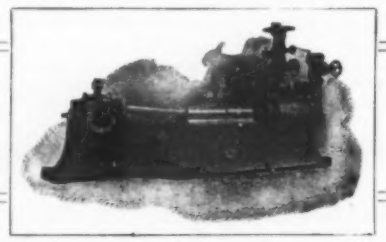
THE FRED. W. WOLF CO.,
139 to 143 REES ST., **CHICAGO, ILL.**

SOUTHERN ABESTOS MANUFACTURING COMPANY
OF RICHMOND, VIRGINIA.

Manufacturers of High Grade Asbestos-Magnesia Pipe and Boiler Coverings. Contractors for Government Work and strictly first-class Locomotive Asbestos-Magnesia Blocks. **THESE COVERINGS PAY 100 PER CENT. DIVIDEND UPON THE INVESTMENT.** They reduce cost of fuel, save wear and tear of engine and lessen chances of fire. A corps of skilled pipe coverers. Contract work a specialty.

BARBER COMPRESSOR
BUILT BY
A. H. BARBER MFG. CO.

WE MANUFACTURE **COILS** OF ALL KINDS



AMMONIA VALVES AND FITTINGS

REFRIGERATING AND ICE MAKING MACHINERY

Built in twenty different sizes, from 2½ to 50 tons. The first machine built in 1894. Over 500 in successful operation January 1, 1900. Catalogue sent on application.

229-231 SOUTH WATER STREET, CHICAGO

"SOLVAY" CHLORIDE OF CALCIUM
SOLID AND FLUID.

The Best Drier for Air in Cold Storage Houses.
Makes the Strongest Ice Machine Brine for the Least Money.

Send for Calcium Circular and Prices.

New York Office: 1012 Havemeyer Bldg. **CARBONDALE CHEMICAL CO.** Carbondale, Pa. Boston Office: 544 Tremont Bldg.

THE PECK-HAMMOND CO.

Heating, Ventilating and ...Sanitary Engineers.

HOME OFFICE-CINCINNATI.

Operating in the Southern States.

CINCINNATI. MEMPHIS. ANNISTON. HOUSTON. ATLANTA. LYNCHBURG, VA.

The Kennicott

Water Softener

A Machine for Softening Water for Boilers.

Send for Booklet, 3d Edition.

Kennicott Water Softener Co.

3567 Butler St., Chicago.

WE ARE READY TO SUPPLY THE

Wonderful Burnam Grate

to dealers or to consumers where there is no agent. It warms two adjoining rooms on the same floor with **One Fire.** For instance—family and childrens's room, family room and parlor, or bed room or bath room, or hall, or two rooms of an office, etc. **One** fire does the work of **Two.**

What you save in the construction of the chimmey more than pays for the grate and **saves half the fuel forever.**

The rich man's convenience,
The poor man's friend.

Dealers, architects and builders wanted for agents in every city and town. Most liberal terms given and **freight prepaid** to any point east of the Rocky Mountains. Ask for illustrated booklet, free, with full information. Address **BURNAM GRATE CO., Huntsville, Ala.**

Ice-Making and Refrigerating Machinery. Eclipse Corliss Engines.

FRICK COMPANY,

Engineers, Builders, **WAYNESBORO, PA.**

NEW YORK OFFICE, Taylor Building, 39-41 CORTLANDT ST.

40 to 1000 Horse-Power Made—Condensing, Non-Condensing and Compound.

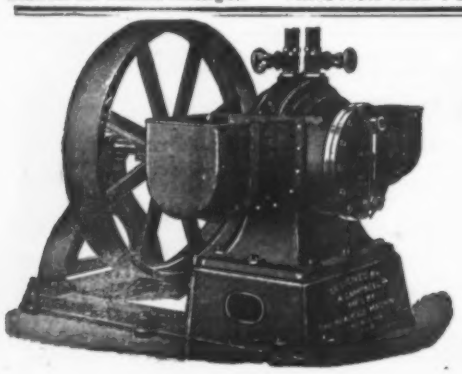
Send for Ice Machine Circular. Send for Corliss Circular.

SPECIAL HIGH-SPEED AUTOMATIC ENGINES, STEAM BOILERS, TRACTION AND PORTABLE ENGINES, SAW MILLS.

Send for our General Catalogue.

VINCENT GATE VALVES
Have an adjustab'e wedge and Do Not Leak.
SWEET & DOYLE. COHOES, N. Y

ICE and REFRIGERATING Machines,
THE COCHRAN CO.
Lorain, Ohio.



Our Improved **Results Guaranteed.**

Compression Ice AND Refrigerating Machines

are Economical and Simple in Operation, built from 1 ton up to 100 tons capacity.

"Single and Double Acting."

The machines now in operation prove it to be the most successful machine on the market. Write for information.

Healy Ice Machine Company, Chicago, Ill.

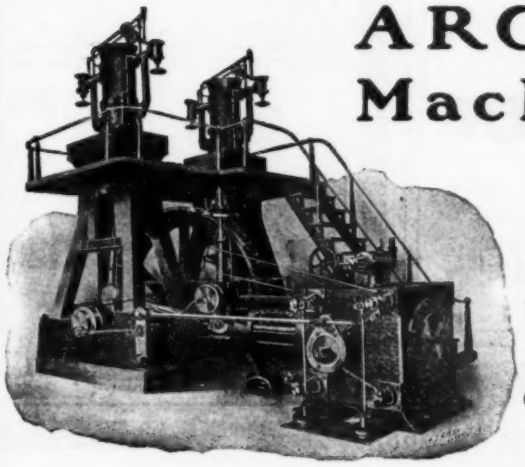
We have in stock ready for delivery, small sizes of

Remington Refrigerating Machines.

We build the big sizes too—Send for catalog.

Remington Machine Co.
Wilmington, Del.

The ARCTIC Machine



For Ice Plants, Breweries, Refrigeration, AND Cold Storage Plants.

If in the market and looking for strictly first class plant, we would be pleased to furnish estimates, plans and specifications for your work.

We have a number of machines running that have been in continuous operation for over twenty years. That's the kind of machine we build.

The Arctic Machine Co.

425 Cuyahoga Bldg., CLEVELAND, OHIO.

If in Buffalo this summer go to Dold's Packing House, Arctic Ice Plant or Magnus Bock Brewery and see our machines running.

THE LUNKENHEIMER "99" MODEL STANDARD INJECTOR.

UNIVERSALLY APPLICABLE.

This machine is warranted to show in actual service results hitherto unattainable with any other make of injector on the market. With feed water at 75° F., **lift 6 feet; it will work without adjustment of steam or water at all pressures from 40 to 250 lbs., and higher, and the capacity can be graded over 50 per cent. at any point** in that range of work. Note carefully, **all conditions are mentioned** in this statement. The construction is simple and free from all complicated mechanism. All parts are easily accessible and tubes are very durable. In grading the capacity, the steam supply is cut down in proportion to the water, hence the discharge is cool and scale is not so liable to form.

It is thoroughly reliable and can be started promptly under the most extreme conditions, and **unlike** many others its efficiency is not confined to any particular part of the year. The capacity increases with the pressure. A trial is solicited and satisfaction guaranteed. Write for Catalog of superior brass and iron Steam Specialties.

THE LUNKENHEIMER COMPANY,

Sole Makers and Patentees,

BRANCHES { 26 Cortlandt Street, New York. 35 Great Dover St., London, England.

GENERAL OFFICES AND WORKS, CINCINNATI, OHIO, U. S. A.

The LUDLOW VALVE MFG. CO.

TROY, N. Y., U. S. A.

Manufacturers of Fire Hydrants and Slide Gate Valves of All Sizes and for all Pressures and Purposes.

LUDLOW GOODS ARE RELIABLE. SPECIFY AND INSIST UPON HAVING THEM.

None are Genuine without Our Name, which appears on every Valve and Hydrant we make and means

STANDARD OF MERIT.

Valves for Extreme High-Pressure Steam, Water, Gas, Oil, Ammonia, etc., a Specialty.

SEND FOR CATALOGUE.

All 'Round Perfection

is embodied in the construction and workings of

The Austin Separator.

It is first in efficiency, first in economy, and first in its adaptability to all conditions of service.

Let us demonstrate the matter to your satisfaction. We ship to responsible parties on 30 days' trial. If not satisfactory, return at our expense.

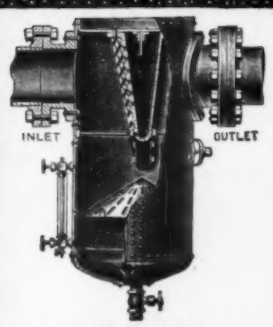
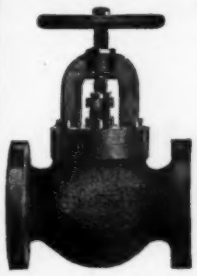


Fig. D, Horizontal.

AUSTIN SEPARATOR COMPANY.
155 Woodbridge St
DETROIT, MICH.

L.L. CLINE ADV. CO.



The John Davis Co.,

33 to 77 Michigan St.,

CHICAGO, ILL.

We Make——

EXTRA HEAVY

Valves and Fittings

of all kinds, and furnish material to sketch for power plants.

We Bend Pipe. Send us your blue prints for estimates.

We Also Make

Separators,

Reducing, Back Pressure and Relief

Valves.

Write for catalogue.

THE **Rhoads Leather Belt Preserver**

gives stick-to-it-iveness; the belt may be run looser, saving wear on belt, bearings and your own temper.
Won't it pay you to try it ON APPROVAL?

J. E. RHOADS & SONS, 239 Market St., PHILADELPHIA, PA.

FACTORY—WILMINGTON, DEL.

From maker to user saves you money.
JOS. MEIER'S SONS,
BELTING
made of centers, oak tanned, by slow process.
Factory, Newark, N. J. Office, 47 Dey St., N. Y.

Hoyt
Short-Lap Oak Tanned
Leather Belting.
Agencies in all principal cities.
Fayerweather & Ladew,
New York, Chicago, Boston.

The "Original Gandy"
Sewed Cotton Duck Belting.
Especially adapted for Main Drivers, Saw Mills, Cotton Gins, Cotton Presses, and for all places where belts are subjected to moisture or atmospheric changes, the "GANDY" stands paramount.
For further information, prices, etc., write
The Gandy Belting Co.
BALTIMORE, MD.

SOUTHERN DIRECT AGENTS.—Whitney & Sloo Co., New Orleans, La.; Grafton & Knight Mfg. Co., Atlanta, Ga.; Keith, Simmons & Co., Nashville, Tenn.; Smith-Courtney Co., Richmond, Va.; W. E. Caldwell Co., Louisville, Ky.; L. M. Rumsey Mfg. Co., St. Louis, Mo.; Towner & Co., Memphis, Tenn.; Briggs Machinery & Supply Co., Dallas, Texas; W. H. Gibbes & Co., Columbia, S. C.; The Baily-Lebby Co., Charleston, S. C.

Have Fasteners or Hooks

for all kinds, make, ply or width of Belting. Easily applied. No punching of holes. Takes place of lacing and all known devices. Price list and discount on application. We pay the freight. If wish sample free please state ply and width of Belt intended for. Write us.
THACHER BELTING HOOK CO., Cleveland, Ohio.

Munson's Leather Belting

Brands:
Eagle,
Chicago,
Dynamo.

If you are a user of BELTS the MUNSON BRANDS will meet your demands.
Our catalogue tells about them—a trial will prove their merits.

CHAS. MUNSON BELTING CO.,
OF PITTSBURG,
10 to 12 Wood St. Pittsburg, Pa.

The Leviathan Is Acclimated!

For perfect service in an Iron Works belting must be unaffected by the high temperature—must, in fact, be acclimated. HEAT, COLD, STEAM—conditions that would seriously injure other belting, has no effect whatever on Leviathan. What is of equal consequence, Leviathan is possessed of that traction quality and immense power that are necessary for the heavy work of the Iron Works.

MAIN BELTING CO.
1233-1241 Carpenter St., PHILADELPHIA.
55-57 Market Street, Chicago.
120 Pearl St., Boston. 40 Pearl St., Buffalo.

STITCHED COTTON
BELTING
"SPHINX" BRAND.
Rossendale-Reddaway Belting & Hose Co.
NEWARK, N. J.

Salem Machine Works.
FLOUR MILL BUILDERS.
Manufacturers of a complete line of mill machinery. Estimates cheerfully given. An up to date roll grinding and corrugating plant in operation.
Lock Box 322, Salem, Va.

Schieren Belts

Give confidence, they insure a constant and even distribution of power.
They are made from PURE OAK TANNED LEATHER; tanned by the SLOW PROCESS—this gives long life.
We make belts of any size, for every service.
We tan our own leather.
Schieren's Belts are guaranteed.
Illustrated Information for Belt Users.

Chas. A. Schieren & Co.
New York, Boston, Philadelphia, Chicago, Pittsburg, Denver.
Tanneries: Bristol, Tenn.
Lace Leather.

Eureka Fire Hose Co.
13 Barclay St., NEW YORK.

ORIGINAL MANUFACTURERS OF
SEAMLESS RUBBER-LINED
COTTON FIRE HOSE.
Also the Celebrated Brands of Eureka Mill Hose, Eureka Underwriters' Linen, Eureka Garden Hose, Eureka U. S. Brand Linen Hose, Plain and Rubber Linen, Trojan Mill Hose, Gem Garden Hose.
EUREKA COTTON MACHINE BELTING.
TEXTILE MILL SUPPLY CO., Charlotte, N. C.
WHITNEY & SLOO CO., Ltd., Agts., 108-112 N. Peters St., New Orleans, La.

"OUR NAME AND BRAND A GUARANTEE OF QUALITY."
High Grade Rubber Goods,

Belting, Packing, Tubing, Springs, Valves, Gaskets, Mats and Matting, Rubber Lined Linen and Cotton Hose.

SEND FOR CATALOGUE, SAMPLES AND PRICES.
N. J. Car Spring and Rubber Co.
Main Office and Works, JERSEY CITY, N. J.

Dehner-Wuerpel Mill Building Co.
1607 TO 1617 S. 3RD STREET, ST. LOUIS, MO.
Mill Furnishers and Machinists.

St. Louis Coffee Roaster.

General Machinery of all descriptions.
Flour Mill Supplies of all kinds in stock.
Power Transmission Machinery.
Design and Erect Coffee and Spice Mills Complete.
Manufacturers of Coffee Roasters, Hullers, Etc.
General Machine Jobbing a Specialty.
Correspondence Solicited.

Every Mill Man
Should Keep Posted by Reading
Power and Transmission
A unique publication in trade literature exclusively devoted to MODERN POWER TRANSMISSION ENGINEERING
Copiously illustrated with typical installations. Other articles of interest to the up to date factory are also contained in each issue. Sample copy free by applying to
THE DODGE MANUFACTURING CO. ENGINEERS, FOUNDERS, MACHINISTS MISHAWAKA, IND. U.S.A.
BRANCHES: BOSTON, NEW YORK, CHICAGO, CINCINNATI, ATLANTA, LONDON, ENG.

IMPERIAL STITCHED BELTING.

Trade Mark.

DUCK and Rubber, the very best. Carefully made. The stitches re-enforce the tough, strong friction in the belt, holding the plies firmly together, thus making the **Imperial** especially well adapted for hard work and for use in connection with medium and small size pulleys.

Catalogue sent free.
Correspondence solicited.

Hose, Packing, Rubber Covered Rollers.

BOSTON BELTING CO.

James Bennett Forsyth, Mfg. Agt. & Gen. Mgr.

MANUFACTURERS OF SUPERIOR

Mechanical Rubber Goods.

BOSTON, 256 Devonshire St. — NEW YORK, 100 Reade St — PHILADELPHIA, 14 N. 4th St. — BALTIMORE, 26 Light St.
ATLANTA, 40-46 S. Forsyth St. — NEW ORLEANS, 404-406 Carondelet St. — MOBILE, 10-16 N. Commerce and Front Sts. — NASHVILLE, 309 N. College St.

The quality of Cocheco Belts

dictates the price. Could we make them for less money, we would do so.

We put into Cocheco all the experience, good material and careful workmanship that it is possible to crowd into one belt.

All we lack to secure you for a regular patron is a trial order.

"When you think of belts, think of Cocheco."

J. D. WILLIAMS & SONS

Dover, N. H.

Branch House: 17 W. Lake Street, Chicago, Ill.

Alexander Brothers
410 and 412 N. Third Street
Philadelphia

Manufacturers of

Oak Leather Belting

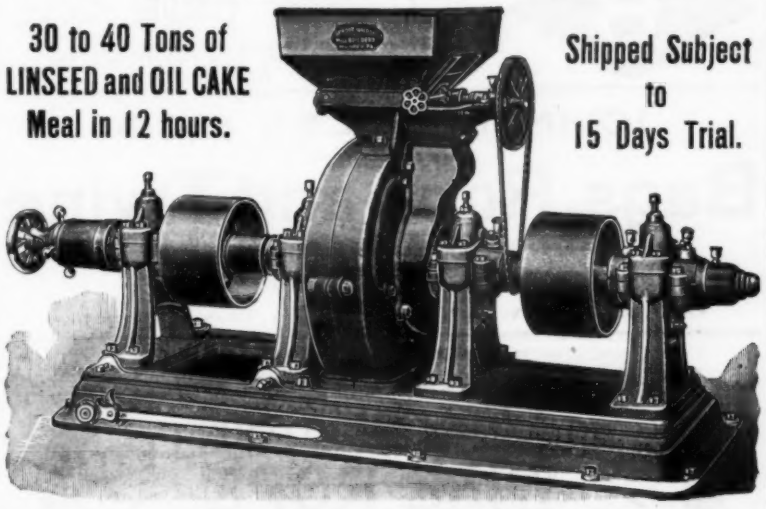
Oak Leather BELTING.

Manufactured by
T. E. PECHIN,
2154-56 Germantown Ave., PHILADELPHIA.

THE "MUNCY" ATTRITION GRINDING MILL

30 to 40 Tons of LINSEED and OIL CAKE Meal in 12 hours.

Shipped Subject to 15 Days Trial.



Not necessary to remove belts to open mill. Contains Quick Release Springs, Movable Base, Self-Oiling Bearings, Perfect Feed, and our Patent Ball Bearing at end of Spindles.
(Beware of infringements.)

GUARANTEED to do as much work, both as to **Quantity and Quality**, as any mill built, and the **manner** in which it is **constructed** makes it the **BEST MILL** offered to the trade. **Write for prices.**

SPROUT, WALDRON & CO.,

Builders of Flour Meal and Feed Mills. **MUNCY, PENNA.**

BURR STONES

For all purposes.
Manufactured by us.

Also ROLLER MILLS, SMUT MACHINES and GENERAL MILL MACHINERY.

Established 1847. **B. F. STARR & CO., Baltimore, Md**

Cotton and Corn are Kings

and wheat also can be raised in the South. And more and more is being produced every year.

There ought to be mills to grind it.

We know we can furnish profit-making mills. Hundreds of millers say so.

The Wolf Company,
Over 1500 Gyrators In Use,
Chambersburg, Pa.

THE "HIGGINS" MILL PICKS.

THE BEST ON EARTH OR NO PAY.

We do not send our goods C. O. D. Thirty days' trial on old or new MILL PICKS. If our Mill Picks are not found to be the finest you ever used, RETURN THEM and we will pay the freight to and from your Mills.
The "Higgins" Mill Picks are now in use in all parts of the World. Illustrated Catalogue free.

JOHN C. HIGGINS & SON, 169 W. Kinzie St., CHICAGO, ILL.

Important Litigation Relating to Magnesia Covering Patents.

The Keasbey & Mattison Co., the owners of the patents for magnesia covering, have commenced a suit in the United States Circuit Court for the Southern District of New York against the **Philip Carey Mfg. Co., George D. Crabbs, J. E. Breese, Schoellkopf, Hartford & Hanna Co., J. F. Schoellkopf, Jr., James Hartford, W. W. Hanna, C. P. Hugo Schoellkopf and Jesse W. Starr** to restrain the defendants from making and selling magnesia covering for boilers and steam pipes containing more than 50 per cent. of magnesia, and especially coverings containing 85 per cent. of magnesia.

The bill prays for a preliminary writ of injunction, to be continued during the pendency of the suit, and upon the final determination thereof to be made perpetual, and also demands an accounting and damages.

☞All persons are respectfully requested to refrain from purchasing covering infringing these patents, as such purchasing must of necessity lead to suit.☜

Beware of Fraudulent so-called "Magnesia" Coverings as well as those infringing on patents.

KEASBEY & MATTISON COMPANY, AMBLER, PA.

NEW YORK. BOSTON. CHICAGO. WASHINGTON. ATLANTA. NEW ORLEANS. CLEVELAND. CINCINNATI. MILWAUKEE.

American Sheet Steel Company

Battery Park Building New York

Manufacturers of all varieties of

Iron and Steel Sheets

Black and Galvanized, Plain and Painted
Flat, Corrugated and "V" Crimped

Apollo Best Bloom Galvanized Sheets
Wellsville Polished Steel Sheets
W. Dewees Wood Company's Planished Iron
W. Dewees Wood Company's Refined Iron

EDWARD J. ETTING.

39 Cortlandt St., New York, N. Y. Land Title Building, Philadelphia, Pa.

Foundry, Machine Shop and Rolling Mill Equipment.

AGENT:
Maryland Car Wheel Works, Car Wheels.
"Mount Savage" Fire Brick.
"Pridmore" Molding Machines for Iron and Brass Foundries.
"Whiting" Cranes, Cupolas, Air Hoists and other Foundry equipment.
"Little Giant" Pneumatic Tools.

Galena COACH, CAR and ENGINE Oils

are the Standard Railway Lubricants of the world. They are more

ECONOMICAL AND EFFECTIVE

than any other Railway Lubricating Oils to be had anywhere.

If you are not familiar with these facts, and are at all interested, please inquire of railway people. For further particulars, write the

GALENA OIL COMPANY,

CHAS. MILLER, President, FRANKLIN, PA.

Paint Talks

If interested in a durable coating for exposed surfaces, investigate the merits of

"Superior Graphite Paint."

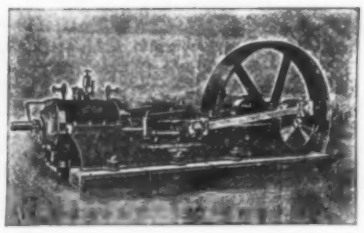
Equally good for metal, wood or brick.

Write for Booklet.

DETROIT GRAPHITE MFG. CO.,
Detroit, Mich.

New York. Boston. Chicago.

AIR COMPRESSORS



Class "B" Belt Driven.

This is the same as our Class "A," but designed to be operated by belt, electric motor, or water wheel.

ROCK DRILLS.

The Ingersoll-Sergeant Drill Company

805 Witherspoon Bldg., Philadelphia, Pa. 26 Cortlandt Street, NEW YORK. Williamson Bldg., Cleveland, O.

THE BARRETT MFG. CO.

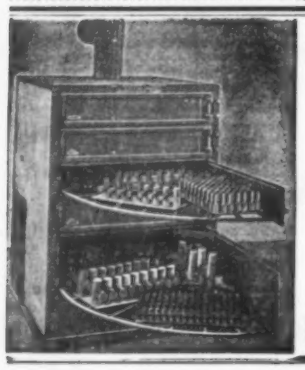
Philadelphia, Pa. St. Louis, Mo. New Orleans, La.

Manufacturers of the famous

TRADE MARK B

"Black Diamond" Prepared Roofing.

Also the largest Distillers and Manufacturers of COAL TAR AND COAL TAR PRODUCTS in the World.



Millett's Patent Portable Core Oven

All complete and ready to put the fire in.

No one who makes small cores can afford to be without it.

DOUBLE DOORS, One closing the oven when the other is open. . . . . .

Saves Fuel. Saves Time.

SEND FOR CIRCULAR.

Millett Core Oven Co., BRIGHTWOOD, MASS.

JOHN T. BAILEY & CO.

MANUFACTURERS OF

Bags, Rope and Twine

IMPORTERS OF BURLAPS.

PHILADELPHIA, PA.

OFFICE AND WORKS—Water and Tasker Streets.

The... BOURSE

Exhibition Department

Offers you an opportunity to extend your business.

For full particulars address

Exhibition Department, THE BOURSE, Philadelphia.

JOHN A. ROEBLING'S SONS CO.

WIRE ROPE

GALVANIZED SHIP RIGGING, MINING, TILLER, ELEVATOR, TINNED, & COPPER ROPE, SASH CORDS.
LARGEST WIRE ROPE WORKS IN THE WORLD.

IRON & STEEL WIRE OF EVERY KIND.

TELEGRAPH WIRE, HARD & SOFT COPPER WIRE
INSULATED WIRES OF IRON & COPPER. FENCE WIRE,
SWEDISH IRON WIRE. CRUCIBLE STEEL WIRE.

TRENTON, N.J. & 117 & 119 LIBERTY ST., N.Y.

MAGNOLIA METAL. BEWARE OF IMITATIONS.

Best Anti-Friction Metal for all Machinery Bearings. For Sale by all Dealers.
Genuine MAGNOLIA METAL is made up in bars, of which this is a fac-simile.

The name and Trademark appear on each box and bar, and besides this the words "Manufactured in United States" and "Patented June 3, 1890" are stamped on the under side of each bar.

MAGNOLIA METAL CO. (Owners and Sole Manufacturers.) **266 & 267 West St., New York.**

London, 49 Queen Victoria St. Chicago, 231 Dearborn St. Montreal, London and Lancashire Bldg. Pittsburg, German Bank Bldg. Boston, 112 Water St. Philadelphia, Hale Bldg.

MANUFACTURERS' RECORD.

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XL. No. 6. WEEKLY. | BALTIMORE, AUGUST 29, 1901. | $4.00 A YEAR. SINGLE COPIES, 10 CENTS.

Manufacturers' Record.

RICHARD H. EDMONDS, President.
THOMAS P. GRASTY, Vice-President
OFFICE: MANUFACTURERS' RECORD BUILDING, BALTIMORE.

PUBLISHED EVERY THURSDAY BY THE
Manufacturers' Record Publishing Co.

RICHARD H. EDMONDS,
Editor and General Manager.

THOMAS P. GRASTY,
General Staff Correspondent.

SUBSCRIPTION, - - - - $4.00 a Year.
TO FOREIGN COUNTRIES, . - 26s. 6d. a Year.

BALTIMORE, AUGUST 29, 1901.

COPY FOR ADVERTISEMENTS.

Advertising copy (changes or new advertisements) should reach us Saturday Morning to insure insertion in the issue of the following week.

For the first issue in the month we should receive copy by Friday Morning of the week preceding.

In subscribing for the Manufacturers' Record the Ocmulgee Lumber Co. of Macon, Ga., writes:

We realize that to keep in line with the progress the South is making we must have a progressive paper; hence we subscribe.

The Board of Trade of Brunswick, Ga., is circulating in pamphlet form the report of the proceedings of the cane and cassava convention recently held at that place. Brunswick is specially interested in the development of the growing of cane and cassava in Georgia as a basis for manufacturing industries, and the Board of Trade, in circulating the pamphlet, is giving substantial aid to a movement for which it is largely responsible.

Great Southern Resources.

Hardly a week passes without the record of a substantial addition to the wealth of the country made or promised in the development of the natural resources of the South. Hardly a student approaches the subject without being strongly impressed with the wonderful possibilities of that section in manufacturing and agriculture, the interdependent bases of Southern progress. This fact, with particular reference to agriculture, is forcibly brought out in an article on another page of this week's Manufacturers' Record. Its author, Col. J. B. Killebrew of Nashville, Tenn., is a recognized authority upon a vast range of topics related to the material interests of the South, and he has done especially valuable work in advancing agriculture and in attracting thrifty immigrants from other sections to ease and comfort in the South. In discussing, as he does, the possible future of farming there, he speaks by the book, and he presents facts and figures which ought to be a spur to the Southern people to exert every energy for a realization of the wonderful possibilities and to energetic men from other quarters to hasten to become sharers in the mighty results.

Stuyvesant Fish and Party Politics.

The leading editorial in this week's Manufacturers' Record is headed: "For President, Stuyvesant Fish." He is the president of the Illinois Central Railroad, and a progressive, successful business man. The Manufacturers' Record does not state his politics or indicate which party it wishes to nominate Mr. Fish.—Raleigh (N. C.) News and Observer.

The Baltimore Manufacturers' Record suggests the name of President Stuyvesant Fish of the Illinois Central Railroad Co. as a candidate for the Presidency, but fails to indicate which party should have the honor of nominating him.—Pensacola (Fla.) Daily News.

The Baltimore Manufacturers' Record wants a business man for President, and nominates Stuyvesant Fish of New York, president of the Illinois Central. The Manufacturers' Record appears to be indifferent as to whether he should be nominated by the republican or democratic parties.—Macon (Ga.) News.

Brethren, we deliberately refrained from suggesting directly the party that should have the honor of being led to victory at the polls in 1904 by Mr. Stuyvesant Fish. But our editorial clearly indicated that neither of the leading parties in the country would go amiss in selecting him as its candidate upon a platform which he could be depended upon to make effective in government to the best of his ability.

Our three inquiring friends know full well why we did not mention Mr. Fish's candidacy in connection with any political organization. The Manufacturers' Record is not for party. The Manufacturers' Record is for the South. Its uniform course through twenty years has been to urge and support every movement and every policy which it believed would bring the South unto the fullness of its magnificent potentialities, to oppose with all its might and influence every tendency likely to cripple the South, and in furtherance of its aim to welcome any local or national plan and to stand by any candidate or platform which seemed to promise most for the South's material good, present or prospective. The comments at Raleigh, Macon and Pensacola, though, warrant the belief that we may be justified in dealing with a few fundamentals in elaboration of a suggestion which seems to be making headway effectively.

Save in times of flux in politics, superinduced by changes in the relations of the country to the rest of the world, the coming upon the stage of a new generation of voters and the natural dry-rot of organization, about the only principle recognized practically by parties in seeking a candidate for the presidency is his ability as a vote-getter and as a distributer of offices. Can he carry New York? Will the South be solid for him? Will he antagonize the independents? These used to be the dominant questions in consideration of this man's or that man's possible candidacy.

The growth of States north of the Ohio and the inclination of more than one of the Southern States to return to the historic norm have weakened the later traditions as to the importance of New York and the South. Illinois has twenty-four electoral votes. Maryland, Kentucky and West Virginia are doubtful States. Independence originating in liver complaint, dyspepsia or megalomania has been overshadowed by the independence, of increasing intensity, that utterly eschews the rubbish of forty or fifty years of campaigning, is not moved by the galvanizing of dead issues or by the waving of threadbare, tattered banners, and is interested in the personal ambition of no office-seeker, but which decides national elections as it votes for business principles, in support of projects that will make for the steady progress of the country and the betterment of its people as a whole.

Now is the time of flux. Now is the time when elections are decided upon definite facts. Independence, North, South, East and West, knows that shifting events have reversed again and again the position of what are known as the great national parties in their aim to gain or maintain their hold upon office. It has too much sense to advocate a measure merely because it is called democratic or republican. In the light of history it perceives the emptiness of titles of the kind. But without regard to party names it supports the candidacy which offers the best chance to the greatest number of persons to have a better life and promises prosperity to the whole country. It is not for sentiment, however hoary, but it is for business. Hence it seeks for its candidate not the politician, appealing to hysterics and the dead past, but the man of affairs in close touch with the practical present and fitted to strengthen the material future.

Recognizing the changing order in the old parties, accelerated as it is by the luxuriant growth of independence, the spirit of business before politics, or, the rather, business in politics, the Manufacturers' Record sees in Stuyvesant Fish an ideal presidential candidate. We do not know by what party name he calls himself. That is of minor consideration. We do know that he is vitally interested in all that concerns a great and growing section of the country, its agriculture, labor, manufacturing and transportation; that he is fully abreast of the mighty questions affecting for good or ill the United States according as they may be ultimately settled as its fixed policy; that he is fully capable of leading in their settlement for good, and that from the standpoint of "practical" politics, if you please, his candidacy would strongly appeal immediately to such States as Louisiana, Mississippi, Kentucky, Tennessee, Illinois, Indiana, Iowa, Minnesota, and even Nebraska and New York.

We do not know whether Mr. Fish would consent to be a candidate of either of the older parties, but we believe that the country would be benefited if the two parties should rival each other for the honor and practical end of being first in tendering him the nomination.

No Room for Drones.

From different points in the South have been coming with greater and greater frequency in recent years statements about the scarcity of labor. Let cotton bring in any year ten cents a pound, and cotton-mill managements are likely to face a shortage of operatives. Let the fisheries in any State along the coast assume more than usual proportions, and farmers immediately begin to feel cramped in their operations. Cotton planters in the Mississippi valley have been crippled by the diversion of their customary help into railroad construction, lumbering, work upon the levees or other undertakings paying somewhat higher wages temporarily. The number of employes in the Alabama and Tennessee coal and iron regions has again and again been found inadequate for the demand, and sugar-growers in parts of Louisiana have been obliged to look for other kinds of workers, as the negroes have drifted to New Orleans or elsewhere. At the same time widely-separated communities have been complaining about the curse of an increasing number of idlers and loafers confined to no race, but naturally representing most strongly the negroes.

It is to be expected that following the utter demoralization of the Southern labor system through the immediate sequels of the war, there should be in the changing life of the South, as agriculture, without losing anything of its actual importance, shares more and more the field with manufacturing and commerce, embarrassments both for laborers and for employers. Drifting of population is an accompaniment of shifting of occupation, but in this revolution and evolution there is no reason for any great body of men to be without work in the South for a long time. There is work there for every man able and willing to work, and while fleeting discomforts may be looked for, the end ought to be a betterment of condition not only for all parties in the South, but for thousands of thrifty men from other parts of the country.

The results of thirty years of mistakes in dealing with the foundation elements of Southern labor are, however, beginning to appear. They should be summarily suppressed for the benefit of Southern labor, particularly that class of labor most likely to be hampered by the evil tendencies, and for the future of the South. With farmers, lumbermen, cotton mills, oil mills, railroad contractors, miners and other promoters of the development of the South's material riches calling for help, loafing of able-bodied negroes or able-bodied whites in the cities or

around the country stores should be made an impossibility.

There ought to be no room for drones in the South. Some Southern States already have upon their statute-books the remedy for the evil. It is possible for the man who can work, but who will not work, to be made to work. All of the Southern States should enact stringent laws for the suppression of the loafer or the vagrant, and either compel him to work steadily or force him from the State and from the South, where he can be only a drain upon his industrious fellows and a preventive of the proper sort of immigration to that section.

Food-Producing Politics.

More and more frequently men of practical affairs in the South are taking occasion to warn its politicians of their possible fate by means of plain talks calculated to develop a public sentiment that will make that fate a certainty. Among the latest to approach the task for the promotion of the South's best interests is Mr. John B. Cleveland of Spartanburg, where he was born in 1848 of stock which has lived in that section since the days of Capt. Robert Cleveland, of Kings Mountain fame in the Revolution, and where he is identified with railroad management, the cotton-mill industry and other active influences for the development of South Carolina. Not a candidate for office, but inspired solely by a sense of duty to his State and its people, he made a speech at Union recently so full of sound sense and truth that the Manufacturers' Record publishes it in full on another page of this week's issue. The speech was a plea for the politics that will not waste, but which will enable men to live better. It was a demand by one representative of business and industrial undertakings, not for the politics that will enable parasites upon the public to gain and hold office by keeping the masses of the people divided upon questions of vain abstractions, but for the politics that will produce food. The speech should be read in all parts of the South, and especial thought should be given to the following succinct statements of Mr. Cleveland:

> We, not only of South Carolina, but the South, have not only to learn many things which we have not learned, but we will have to forget a great many things which we have heretofore learned.
>
> The question of materialism or money is not a question of individual wealth, but it is a question of bread and butter.
>
> There are too many now looking for an excuse for idleness; they need no encouragement. * * * What is most needed in this country is meat to eat and clothes to wear and books and newspapers to read to improve our understanding, so that we can go on doing better things for ourselves and our community. We are not looking for excuses to be idle.
>
> Politics is not sentiment; it is not for the purpose of giving offices to people who need them; its principle concern should be your prosperity and that of the country—practical, substantial results, and not a government founded on theory.

These truths may be regarded as the four cornerstones of an argumentative structure of plain, matter-of-fact business, with no useless decorations, no flowers of rhetoric, but standing out as an embodiment of common sense in the treatment of vital subjects, bound to be dominant ones in the South for some time to come.

In simple logic Mr. Cleveland laid course after course of his substantial structure, squaring expansion, the treatment of political non-competents and a subsidy for the merchant marine to historic Southern policies, and carrying through the whole a demonstration of the necessity of practical politics to the good of the State. Toward the close of his speech he said:

> It seems to me that if this question alone was a question of party, which it is not, that you and I both would be justified, not in trampling platform and party under foot, but rather in rising above and beyond and out of sight of party, leaving it in oblivion, in order to secure for our people, not that which is important, but that which is necessary.

There is the lesson for the South. Political parties are of value only as they subserve the material interests of the people. When they fail to do that the people must let party politics and party politicians slide.

To Advance Cotton Trade.

D. A. Tompkins has made a vigorous start as manager of the textile exhibit at the Charleston Exposition in a circular-letter to the cotton manufacturers of America, calling their attention to the opportunities for advancing the cotton-goods trade in making a thorough exhibit of all goods made in this country suitable for the West Indian and South American markets. It is proposed to have in connection with the exhibit an information bureau for the joint benefit of all the mills operating, though this plan will not preclude any mill from making a separate exhibit on its own account. To balance the work of American mills in preparing their exhibits the management of the exposition will make a most active canvass of the West Indies and South America to induce a large attendance of the merchants of all those countries. Mr. Tompkins contends that the opportunity in the West Indies and South America is better than in China, where the market is slowly recovering from the effects of the Boxer trouble. He quotes figures of the Treasury Department showing that the annual imports of cotton goods into South American countries represent nearly $90,000,000, and that the share of the United States in this trade is hardly $11,000,000, but that the trade in the United States and South America in the kind of cotton goods commonly made in the South might aggregate more than $50,000,000, though at present only about $1,000,000 are represented. In China American cotton goods represent about 20 per cent. of the total imported. What has been done in China should certainly be attempted in the countries lying so much closer to the United States, and, as Mr. Tompkins points out, the gaining of that trade is as of much importance to the mills of Fall River as to the mills of the Piedmont South. At Charleston all the mills will have a chance, by carrying out Mr. Tompkins' suggestions, for unity of action in a special case, which might happily lead to a unity of action generally to the suppression of wasteful disputations which now and then mark the progress of textile development in the United States.

That it is an ill wind which blows no one good has been demonstrated at Gulfport, Miss., according to the Record of that place. When the storm which swept the Gulf coast two weeks ago was raging off Gulfport there was great anxiety there about its effect upon the channel which is being made, and the general conviction was that if a storm should ever destroy the channel that one would. Three hundred soundings in the channel were made the day following the storm, and they revealed a depth ranging from twenty to twenty-four feet. According to the Record, the channel had deepened instead of shoaling, and the receding waters, caught in the channel as in a trough, had removed all the loose mud accumulated on the bottom. The Record believes that the feasibility and durability of the channel between Gulfport and Ship Island Harbor have been firmly established, and is jubilant on that account.

Building for the Future.

The Jacksonville Times-Union and Citizen is making a persistent effort to turn the recent disaster in its community to good account for the future. It has noted with a great deal of satisfaction the improved character of the buildings which are replacing the ones destroyed by the fire, but it is not satisfied with that. It sees in spaces left by the removal of the ruins valuable sites for factories of many kinds, and points to the success of the factories already established as an incentive to the building of others on a larger scale. It dwells particularly upon the opportunities for the manufacture of starch from cassava, of brooms for the development of broom-corn culture in the neighborhood, of canneries to handle the surplus of truck farms multiplying in the State, and of furniture factories to utilize the ornamental woods of Florida, twenty of which, it says, cannot be duplicated. This is the right spirit enunciated upon the right line. Florida is ceasing to be a largely agricultural State. Factories are coming to the farms, and the ports are shipping more than mere rough material for industry. The community which adds factories to its trade with farmers and foreign parts is the community that will steadily progress in wealth and in all the comforts, conveniences and luxuries which wealth may bring.

Wise Handling of Forests.

The Daily Gazette of Charleston, W. Va., asks:

> Is all the splendid timber that has stood and still stands upon lands near this city, and of which it is the natural market, to be allowed to be cut and carried away, and the city only to be made a sort of way-station in its handling? A score of factories to work into high-priced commodities the hardwood that comes here should be sending their smoke heavenward from this valley, thus swelling the tin-bucket brigade and adding to the prosperity of every line of business located here. This state of affairs can be brought about, too, by united effort upon the part of the people.

This is an excellent suggestion. To it should be added another: Is all that splendid timber to be cut and marketed without plans being carried out to preserve the supply? West Virginia is a great lumber State and is destined to become greater. If, however, no steps are taken to handle its timber supplies intelligently, and with a view to the future, its eminence in lumbering will pass, and, at the same time, it will be likely to suffer in other directions. Wise handling of its forests will give it a perpetual source of wealth.

Southern Farm Magazine.

There are many organizations of one kind or another in the South representing different interests. Some of them are of value to the South; others are useless. One of the most practical organizations for the advancement of Southern agriculture is the Texas Farmers' Congress. Its annual sessions at the State Agricultural College, in close touch with men who are leading in the movement for better agricultural methods and more satisfactory results from farming, have generally been marked by matter of fact business and a display of sound common sense. This year's convention was no exception to the rule except in the direction of greater perfection. Politics was excluded, wild schemes were not mentioned, but the members spent their time uresenting or discussing papers bearing directly upon the present and future of Southern agriculture. The mass of papers had a definite bearing upon some phase of farm life, either staple crops, special lines of endeavor, relation of agriculture and manufactures, or suggestions for the bettering of the condition of the farmer and his family. Quite a number of them were of such a comprehensive character that the Southern Farm Magazine in its September issue publishes them in full in some cases and in others prints their most salient points as a special feature, believing that thereby it is rendering the whole South a benefit. Among the topics thus reviewed are education and co-operation, by Harvie Jordan; the place of the agricultural college, by L. L. Foster; canneries and cotton gins, by R. H. Price; a plea for white labor, by E. G. Senter, and rice culture and its profits, by Oswald Wilson.

It is notable that the character of farm buildings in the South and their surroundings are rapidly improving, and that the movement for beautifying towns is gaining strength yearly. Still, many persons remember unpleasantly the appearance of many homes in the South sharply contrasting with that of farm houses in other parts of the country, and in many cases they have hit upon a wrong explanation. The correct one is given in a suggestive article by Col. J. B. Killebrew, entiled "The Mortgage Burden." Other leading articles in this month's issue of the magazine are "The Economic Advantages of the South," by Dr. Charles W. Dabney, president of the University of Tennessee, and "Science and Practice in Agriculture," by G. F. Klugh, one of this year's graduates at Clemson College, South Carolina. In his special department Peter Pechin, who seems to have the faculty of expressing views diametrically opposed to those of the vast majority of people in the country, has some spicy comments upon the science of war, popular education, the worship of ancestors and the interaction of men and nature. Other departments of the Magazine sustain their reputation for freshness and interest.

The Southern Farm Magazine is published monthly by the Manufacturers' Record Publishing Co., Baltimore, Md. Price $1 a year.

Kentucky for Good Roads.

The Commercial Club of Louisville, which has been active in promoting the cause of good roads in Kentucky, will have an open meeting on September 26 to make plans whereby each county may work to the best advantage in road improvement. In an interview in the Courier-Journal Secretary J. C. Van Pelt of the Commercial Club commented upon the importance to commercial and transportation interests, as well as to agriculturists, of good road construction, and said:

"In some sections of the United States the railroads willingly transport road machinery and road material free of cost. While this seems generous, the railroads that have shown this disposition to cooperate with the people along its lines in developing their business interests have found their own interests greatly advanced by the operation."

THE AGRICULTURAL POSSIBILITIES OF THE SOUTH.

By Col. J. B. Killebrew.

[Written for the Manufacturers' Record.]

In an address recently made before the North Carolina Bankers' Association by Mr. Richard H. Edmonds of Baltimore he stated that the South is capable of duplicating the agricultural products of the United States at the present time, if not in kind, at least in value.

The New York Journal of Commerce thinks that Mr. Edmonds is too sanguine, if not extravagant, in making this statement. I propose in this paper to give such facts and statistics as will clearly show that Mr. Edmonds' statement is within the bounds of probability, and may be considered conservative.

Preliminary to the discussion of this subject I may venture to say that the people of the Northern States are not familiar with the resources, capabilities and possibilities of the South. They know that the South is the producer of cotton and tobacco, rice and sugar, but as to its capacity for the growing of wheat and corn and for the raising of live-stock of all kinds there is an amount of ignorance that is almost incredible to those who are acquainted with the facts. The South is a vast region, and has more varied soils, climatic conditions and the capacity for the growth of more crops than any other like area in the world. Its flora is remarkable in variety, value and quantity. Estimating the fruits, vegetables, grasses, berries, cereal crops, textile plants and other vegetable productions of economic value, there are not fewer than 125 products of the soil that may be grown and are grown with profitable results. Indeed, it may be said of the Southern States that if all the varieties of vegetable products grown on the earth were destroyed except those that may be brought to maturity in the Southern States mankind would scarcely miss them.

The fourteen Southern States, excluding Oklahoma and the Southern Territories, embrace an area, according to the most recent statistics, of 831,201 square miles, which is about four-sevenths of the area of Europe, excluding Russia.

During the year 1900 the United States produced on 42,495,385 acres 522,229,505 bushels of wheat. This was on about 66,400 square miles, or less than one-twelfth of the area of the Southern States. The yield reported is 12.3 bushels per acre. With the abundant means of fertilization available in the South by reason of its extensive phosphate beds, this yield may easily be increased to an average of twenty bushels per acre. The experiments recently made in Georgia were the soil is not fertile, but was well prepared and well fertilized, showed an average yield of over twenty-five bushels per acre. The uplands in nearly every portion of the South can be made to produce this great cereal crop profitably. Many such lands have in the past been considered worthless for the production of wheat that are now producing from twenty to twenty-five bushels to the acre. The treatment of the whitish soils of the highland rim in Tennessee and Alabama is a case in point. Up to 1890 these soils were considered practically worthless for the production of wheat. Six to eight bushels per acre was thought to be a fair average yield, but the application of the superphosphate of lime to these soils has increased the yield 300 or more per cent. There are millions of acres of such lands now awaiting the labors of the intelligent husbandmen, and the time is not distant when the central States of the South, as well as Texas, will be considered among the best wheat-growing sections of the Union.

It is believed by the best practical agricultural thinkers and writers that within twenty years the South will be producing, if prices should justify, over 500,000,000 bushels of wheat on 25,000,000 acres, which is less than 40,000 square miles and less than one-twentieth of the superficial area of the South. This accords with a statement made by Mr. Edward Atkinson that the present wheat crop could be produced on the unoccupied lands of three of the Southern States or Territories.

The corn crop for 1900 was grown on 83,320,872 acres, and aggregated 2,105,102,518 bushels. This was an average yield of 25.3 per acre, and occupied an area of 130,188 square miles. This is something over 15 per cent. of the entire area of the Southern States. It has been demonstrated frequently that by intensive methods the yield of the corn crop may be increased many fold. In a contest for a prize offered by the American Agriculturist a yield of 237 bushels of corn per acre was made in South Carolina, which was the largest reported from any portion of the United States. It is not unusual in the border States to gather eighty bushels per acre on large areas without any fertilization whatever. In one case in Tennessee government officials measured the crop grown by the late Tom Crutchfield of Chattanooga, and certified to a yield of 120 bushels of shelled corn to the acre, and this yield was made without the use of fertilizers or any manurial applications whatever.

What is done now by ignorant labor and by improvident methods is no criterion as to what may be done by intelligence applied to intensive farming. It is not extravagant to say that the States of Kentucky, Tennessee, Arkansas, Mississippi, Alabama nad Georgia could easily grow as much corn as is now produced in the United States without restricting the area given to cotton and tobacco.

The area necessary to produce the present quantity of corn could easily be reduced to one-fourth the area of the States named, or say 73,432 square miles. Cultivated as the lands in Holland and East Lothian in Scotland are and irrigated, one-half of the now unoccupied lands in the States named would produce more than 500,000,000 bushels of corn, for out of the 293,727 square miles embraced by these States, there were in cultivation, or rather in improved lands in 1889 only 79,355 square miles, or a litle over one-fourth. Put one-half of these six States in corn; have no improved system of cultivation, no fertilization, no irrigation, and let the yield be reduced to 22.3 bushels per acre, and the present corn crop of the United States would be duplicated. There would then remain eight States, with nearly twice the area of the six selected, in which it would not be necessary to plant an acre of corn to attain the present production of the United States.

The production of oats in the United States reaches 809,125,989 bushels, grown on an area precisely equal to that of the State of Tennessee, viz., 42,750 square miles. Winter oats grown in the southern parts of the border States and in Georgia and Alabama often yield fifty bushels to the acre. Instances are given where over 100 bushels per acre are grown. It would be a small matter for the Southern States to duplicate the oat crop of the United States without entrenching upon the area necessary for the other standard crops.

But allowing that the quantity of standard crops of grain in the whole country could not be duplicated in the South, there are crops peculiar to that section which, added to the other crops, could easily be made to equal in money value all the grain crops now made in the United States, as well as other crops. The cotton crop of 1900, including seed, was valued at $535,000,000. This could be increased many fold; so could the sugar and rice crops.

Dr. Dabney, the former Assistant Secretary of Agriculture for the United States, in an elaborate essay published in the Southern Farm Magazine in 1897, said: "Experience shows that cotton is limited by climatic conditions to that portion of our country south of latitude 37 degrees. The cotton belt of this country thus covering about 24 degrees of longitude and 10 degrees of latitude. Excluding from the cotton section Virginia, Kentucky, Kansas, Missouri, California, Arizona and New Mexico, in all of which cotton has been cultivated, and where a larger demand would cause its culture to spring up again, and excluding also all of Northwestern Texas, which is not adapted to its culture, the cotton-growing region of this country measures over 550,000 square miles, which was nearly one-third of the total settled area of the United States in 1890. Over 50 per cent. of the 550,000 square miles is in farms, and over 20 per cent. is improved. The interesting fact for our present consideration is that of the total area, only about 5 per cent., or one-tenth of the area in farms and one-fourth of the area of the improved land, is annually cultivated in cotton. Since the present methods of cultivation require, roughly speaking, two and one-half acres to produce a 400-pound bale, the area now in farms in this section would, if all cultivated in cotton, produce over 80,000,000 bales. So far as climatic conditions and soil are concerned, therefore, there is no limit to the amount of cotton that can be produced by this country until the annual crop has become at least ten times what it is at present."

Dr. Dabney based this production on the low estimate of one bale of 400 pounds to two acres and a-half, when, by proper fertilizing, one acre may be easily made to produce from one to two bales of 500 pounds each. Indeed, with anything like intensive farming the present cotton crop could be easily grown in the State of Texas alone, which now produces one-fourth the crop. Less than 25,000,000 acres are now employed in the production of this textile crop, while a conservative estimate of all lands capable of producing cotton would not be less than 150,000,000. Dr. Dabney estimates that by the year 1920 the world's needs for American cotton will reach 20,000,000 bales. By the end of the present century it is not improbable that the demand for cotton goods may require a cotton crop of 100,000,000 bales, all of which the South could furnish and yet be able to duplicate by intelligent, not to say intensive, farming all the other standard crops now produced in the United States.

The tobacco crop of the United States will average nearly 500,000,000 pounds grown on 500,000 acres, or less than 800 square miles, which is about the area embraced in two average counties. This crop could be duplicated many times upon one-tenth of the unimproved lands of the South.

The rice crop at present grown in the South is 136,990,720 pounds, estimated to be worth $10,000,000. This is one of the growing agricultural industries of the South. While the Southern States do not produce much hay, this may be offset by the cotton, rice and cane sugar products. It would be a tedious inquiry to go into all the details as to the value of the live-stock, dairy products and other special industries, but it should be borne in mind that the coming years will develop a large increase in all these specialties as the labor of the South increases in intelligence and efficiency. The short winters and the long grazing season with the capacity of the soils of the South to grow many forage plants not grown in the Northern States, oftentimes producing a succession of crops on the same land during the same year, will make the business of cattle-breeding and dairying grow with wonderful rapidity. Wool and mutton can nowhere in the United States be produced so cheaply as in those States where Bermuda grass furnishes a constant supply of green forage, and where the winters are mild, water abundant and the summer's heat not so oppressive as on the great Western plains.

The estimated value of all farm products of the United States for 1900 was $3,000,000,000. Should the demand ever come, the South could sell at present prices cotton enough to reach this sum.

Take the value of the agricultural products of the South to be $1,220,500,000, as estimated, and it will approximate the value of nearly one-half of all the agricultural products of the United States. In this estimate were not included, apparently, hemp, peas and beans, which would run up the aggregate several millions of dollars.

All these products have been made on 166,610 square miles of improved lands (census of 1890) out of a total of 831,201 square miles in the South. That is to say, there is only 20 per cent. of the lands of the South improved. Concede that only 50 per cent. is susceptible of being improved, then the South should easily produce over $3,000,000,000 of agricultural products on 50 per cent. of its territory without employing any improved methods of cultivation or fertilization, and employing ignorant labor.

There is still another point lost sight of by many statisticians who calculate the possibilities of the South. The long period between killing frosts enables the farmer to grow two crops, and often three, in one season upon the same lands. A good corn crop may be produced on wheat and rye stubble in all the States South of the 35th parallel. Two crops of Irish potatoes are now grown in Tennessee and in all the States south of it during the same season. To mow several crops of millet, alfalfa and other forage crops from the same field in one season is not only the exceptional, but the usual practice. This advantage over the Northern States, due to climatic conditions, increases in effect the acreage of the tillable lands in the South.

It is useless to go further in this discussion. The earth has nowhere upon its bosom another region so fruitful as the South in multiplied agricultural capabilities or in those elements that multiply human industry and human happiness. Every year discovers some new resource in the South. It grows every food plant needed by man. It produces more and better textile plants than any other portion of the globe. It is rich in almost every mineral used in the arts—iron, copper, zinc, lead, marble, etc. It has phosphates to enrich its soils, coal and water-powers to drive its machinery. It is the coming focus of the world's commerce and the center of its industry. Its possible cotton crop can employ more people than any other one product grown on the earth, and what is better, the South can feed them all from its fertile fields.

The people of the North are accustomed to compare the progress of the South with that of their own section, and to

criticise what they are pleased to call a "want of enterprise." They forget that thirty-five years ago the South started with nothing. Despoiled by war, deprived of its labor, with most of its fields devastated, stock killed and all industries destroyed; with no sympathy from the government and with hardships thrust upon its people almost beyond endurance; in spite of all these disasters and drawbacks, the growth of the Southern States within the thirty-five years will compare favorably with the century's growth of the Northern States. One may safely challenge the industrial history of the world to find such rapid and healthful growth in such a short period and under such depressing circumstances and conditions as has been displayed by the Southern States.

A QUESTION OF BREAD AND BUTTER.*

By John B. Cleveland of Spartanburg, S. C.

A word about myself. I am not a candidate for any office, nor do I expect to be. I accepted the invitation of your committee as much from a sense of duty as any other motive, and am willing to do what I can to your entertainment and information.

Over 100 years ago, but a few miles from this spot, was a church called Union Church, from the circumstance, I suppose, that all the denominations of the community worshipped there. When your county was organized and your town located, I believe in 1787, the county and town were given the name of the church. Let us accept as a good augury that, however we may differ in our views on economic questions, and whatever may be the different means suggested, there is to be no division among us as to the object and purpose. All are working for one common end—the upbuilding and progress of our Commonwealth. I am sure, so far as I am concerned, nothing shall occur here today or shall be said today which would lead to any other conclusion.

If the question was asked who was the greatest American, there would be but one response, and Washington would be named by all. If the question was asked who was the wisest American, there would be another who would not yield the first place to the Father of his Country. There would be many votes recorded for Benjamin Franklin, the Quaker philosopher and apostle of thrift. Why? Because of his sound judgment and incomparable common sense. He has given us in many of his short sentences more wisdom for the government of our daily life than is found in any book except the Book of Proverbs. According to his philosophy, all means led to one end—the improvement of our condition as individuals, the improvement of society as the component part of the State, and the improvement of the State itself. The means amounts to nothing if it did not secure practical results and the practical results were tangible.

For the individual it means freedom from want; for the community it means prosperity; for the State it means continual progress in the line of material development. He so impressed the community in which he lived, and the seeds that were sown by him have been so fruitful that if he were alive today he would be amazed at the greatness and prosperity of his native State, Pennsylvania. In a pilgrimage to his grave a few weeks ago in the city of Philadelphia, in passing through the old graveyard, I was struck with the great number of names familiar to my ear and so common in this country. You would suppose that you were in God's acre at one of the country churches in upper Carolina, and when I remembered that we, too, had our York, Chester and Lancaster counties named after the Pennsylvania counties by early settlers who came from there, it occurred to me why this great difference when we are practically the same people, who should have the same aspirations and the same ambitions to get along. The answer must be, it is only the opportunities that are wanting.

When I note the progress that has been made in the State of South Carolina in the line of one industry alone, and more especially in your own town, there springs the hope, there comes the encouragement, that we, too, although lagging far in the rear, may at some time be considered in the same class as the great Keystone State. In order to do this I am firmly convinced that we, not only of South Carolina, but the South, have not only to learn many things which we have not learned, but we will have to forget a great many things which we have heretofore learned.

In studying the history of our country, if a comparison is made along the line I have indicated, for instance between the States of Pennsylvania and South Carolina, it presents the view to my mind of a comparison between a man who is practical in all affairs of life and the man who is not; one who is a materialist and one who is not, but who is rather disposed to make light of material things and sneers at the others who do. It is not my purpose to criticise unkindly the actions of our forefathers or the generations which might be held responsible for the slow progress heretofore made in this section of the country, but I feel that I would not sufficiently point the moral unless some allusion was made to the past. I yield to no one in my admiration for the Carolina Bourbon as he has been painted and as we love to think of him—conscientious, honorable and strictly honest. He was the peer of any either in the New or Old World. In all he undertook there was never a suspicion of dishonesty; every penny he handled was accounted for, and the bills of bank signed by him were current over the Union; but in many things he was entirely impracticable. There are some who still cling to this school; you hear it at college commencements and read it in our newspapers.

The question of materialism or money is not a question of individual wealth, but it is a question of bread and butter, necessarily so because no hungry man was ever contented. "Armies crawl on their belly," exclaimed the great Napoleon. It seems to be a fashion to sneer at money and what is called materialism, branded as the lowest form of aspiration. Analyzed, it is the doctrine of idleness; it is not the philosophy of Benjamin Franklin, nor is it the doctrine of the Bible. There are too many now looking for an excuse for idleness; they need no encouragement in that direction. This platform sneer at money is well calculated to bind our people to false idols. What is money but bread and butter? It of itself is nothing. It only represents the bread and butter on your table and the shirt on your back and other daily wants. To get up in the morning and find these things wanting is terribly inconvenient, and it strikes me as nothing but retributive justice that the school teacher or professor teaching the contempt of money as being the least of all virtues might with advantage be put on bread and water for a few days; he would then probably have more respect for both labor and capital. We are as good as the average. What is most needed in this country is meat to eat and clothes to wear and books and newspapers to read to improve our understanding, so we can go on doing better things for ourselves and our community. We are not looking for excuses to be idle. I am one of those who believe that this generation has made such progress, even handicapped as it has been by poverty and adverse conditions, that no such criticisms can or will ever be made of it. Why? Because in the last few years there is more independence and individuality of thought and our people are becoming daily more practical, and looking forward more to results, not in the least that they have become more dishonest in practice or principles, but because they have learned that it is best for themselves and best for the country. We see the tangible evidences of this in the establishment of schools, both male and female, which fit our children for the varied and many occupations of life, and turn them out with skillful and ready hands as well as with cultured minds. We see it in the establishment of hundreds of public schools, which gives all an opportunity for an equal race in life, and this is not left to the caprice of any legislature. Support of these public schools have been guaranteed by our constitution, and their maintenance is part of the organic law of the land—more important than all, because it gives the assurance that while you may not be in sympathy with me, your children will.

This is the line of progress, because it gives us something that we can see and feel and touch and come in daily contact with. I do not hesitate to say that we are now in the right line. All that remains for us to do is to continue in this direction.

When you send members of the legislature to Columbia, members of Congress to Washington, you should expect that their vote there will mean substantial aid to you and your community, because politics is not sentiment. It is not for the purpose of giving offices to people who need them. Its principal concern should be your prosperity and that of the country; practical, substantial results, and not a government founded on theory.

Now let us for a moment narrow the horizon. How are we in this community to realize this—how can we become prosperous? We will not do it by digging iron or coal, because it is not here. We have tried cotton and corn, and the results are not encouraging. There are no thousand flocks in our pastures, and not likely to be. This audience has already answered the interrogation—cotton manufacturing. There is no use for me to indulge in statistics. You all know this—that while we raise 80 per cent. of the cotton of the world, instead of spinning all of it, as we should do and will do if you elect practical men to office, we only spin less than 5 per cent. of it. Total of the world, 105,000,000 spindles; Europe, 80,000,000; the South, 4,500,000, or less than fifty spindles in every 1000 bales. Some of the gentlemen on this platform might say, why not go on and spin it? I will tell you why—we have not got the markets. Less than five months ago—and for aught I know at the present moment—the cotton-spinner of the South was on the brink of an abyss. This condition, more than anything else, brought home to me and convinced me that if this business of the South should prosper, we should have larger and wider markets than afforded by this country alone. With the exception of two provinces in Northern China, and with the exception of one or two points on the Red sea, from whence the goods are distributed to Africa and India, this country exports no cotton goods of consequence to foreign lands. England, with its 40,000,000 spindles, and the Continent with the same or a greater number, have virtually a monopoly. It is left for the Southern cotton-spinner to get in wherever and whenever he can. We make our goods as cheap or cheaper than Europe, and they are better goods; still their trade is ten times greater than ours. Why? In the first place, England, France and Germany, and especially England, have their colonies and what is known as their sphere of influence over the whole world. People who are subject to their laws, have their manners and customs, and, in the case of England, millions of them having the same language, naturally prefer to trade with the mother country. Until recently all such avenues were shut off to us. We were in the position of the farmer shut in on his own farm and liable to be smothered with the products of his own labor for want of a market. Many of you know what such conditions are. But we are told this expansion policy is contrary to the spirit of democracy, and we all must be democrats.

Now, let us see about this question of expansion. The history of our country since the days of '76 has been one of continual expansion; in fact, it has been one of the most marvelous exploits of the great republic. As early as 1792 the great States of Oregon and Washington, far to the northwest of us, were untrodden by the white man, and were unknown except to an occasional trapper. This territory lay some 3000 miles northwest of our capital, had nothing in the form or semblance of government, and was as much foreign to the United States as the remotest corner of the globe is today. It was more inaccessible than the frigid islands of the Arctic ocean. It was cut off from us by the territory claimed by the French, and it was not until 1819 that the United States felt sure of its sovereignty there. Louisiana was purchased from the French in 1803 for the sum of $15,000,000.

This territory not only embraced the present State of Louisiana, but all the great States north and northwest of her, including nearly all the Mississippi and Missouri basin. This country, if anything, was more foreign to the United States than Oregon, because it was practically settled by an alien population—people who did not speak our language, and whose interests were hostile to us. It is true that they were not very strong, but sufficiently so to impress upon the territory the names of the fatherland. What schoolboy does not know that New Orleans, St. Louis, Joilet and Detroit are French rather than English, and not only Louisiana, but Missouri, Michigan, Illinois and others bear this stamp of the lilies of France. Within three hours' journey of this place by rail you reach territory claimed by the French, at one time under their influence, and the French Broad river, within seventy miles of us, bears the earmarks of the Latin race; in fact, this whole Mississippi basin was so foreign to our country, their interests and their customs were apparently so different, that many thought that it should form a separate and distinct government, as the Mississippi and its tributaries were its highways leading to the Gulf, and this was the only chance for trade and future development. Aaron Burr thought so; many, also, as prominent as he thought so, and some of the most prominent men in the States of Kentucky and Tennessee, and even Andrew Jackson, one of the

*A speech delivered at Union, S. C.

high chiefs of democracy, was accused of leaning that way. The argument they presented was similar in some respects to those that you will hear presented today. It was too far from the seat of the national government; it has no ways of communication with the States east of the Alleghany mountains; its waterways were the only means of communication with New Orleans, their only outlet to the markets of the world. To be impressed with the condition of that country at that time you have only to read Mr. Roosevelt's "Winning of the West." You will then appreciate the embarrassment that the people had for want of means of transportation. There was absolutely no way of getting across the mountains except with pack-horses along the Indian trails. Mr. Roosevelt says that the man who earned the highest wages was the expert packer—the man who could so pack the goods as to get the most on his beast of burden.

Now all this has been changed by the construction of roads, by the building of railroads, so that time and space has been eliminated. Is there no lesson to be learned from this? Cuba and the Philippine Islands are much nearer to our capital today than New Orleans was 100 years ago, and when those countries are assimilated and brought under the sovereignty of our flag people will wonder then why there was such opposition, as they wonder now why there was such opposition to the Louisiana purchase.

Coming down in regular order, Florida was acquired from the Spanish in 1813, for which Andrew Jackson, one of the fathers of democracy, was a conspicuous champion. Texas was the next object of expansion in 1846, the right to which was not ceded to us by Mexico until 1848, and then the cession to us by Mexico of the magnificent empire of California. The Gadsden purchase, territory lying just north of Mexico, was acquired in 1853. If I recollect correctly, all this acquisition of territory, which was many times larger than the original thirteen States, and all of it remote from our capital, and all of it inhabited mostly, with the exception of Oregon and Washington, by people foreign to us in language and race, was under a democratic administration, and yet we are told that the doctrine of the annexation of foreign countries is contrary to democracy. This leads us to inquire what is democracy? I am not familiar with the platform or parties. I do know what is the cardinal principle of democracy. It is expressed in three words—the people rule.

Next to that small, still voice which is found in the breast of all is the voice of the people. Next to that voice which came from Sinai is the voice of the people as opposed to all government which does not rest upon constitutional right and which does not recognize the right of the people to speak for themselves Our friends smile at this, and reply, you do not apply this rule to Porto Rico and the Philippines. We do as much as we did to the Indians and the people of the Territories—we take them in on probation.

In the history of our State it can be shown that our own people have done far more violence to democratic principles than what is even suggested now. I will give you two instances: For years and years before the war the people of South Carolina took no part or parcel in the United States except indirectly. The presidential electors, who elect the President, were voted for and elected by the legislature, and I have heard it said the people of Spartanburg county in crossing the line into North Carolina were actually amazed and astonished at the excitement in a presidential election, when many people in our State did not know who the candidates were. At one time representation in the legislature, under the parish system, was based not upon population, but upon the value of property represented, and yet the voice of the people is heard in the land and democracy lives.

I cite these two instances to show you that many critics of progressive democracy were reared and nurtured under democratic policies which were entirely at variance with what is understood to be the democracy of today. It might startle you, but it is nevertheless true, that the truest form of democracy found in this country today is found in republican New England, where the affairs of the community, the roads and bridges and schools and taxes are all looked after not by boards or commissions, but by the people themselves at township meetings, where all may hear and all may vote, and I hope to live to see the day when this will be done in South Carolina.

In an issue of the State newspaper Monday, July 22, in an article headed "South Carolina's Great Mill Record," the concluding paragraph is as follows: "We have outgrown the home market and are brought to the point where we must find ample foreign fields, or check the production of cotton goods. What is the matter with the South American market?" This is the whole matter in a nutshell. We have outgrown the home market. If the cotton-mill industry is to continue to grow, if our ambitions to spin the whole crop of the South is to be realized, then it ceases to be a question of expediency and political question, but purely an economic one. We must have other and wider fields. "What is the matter with the South American market?" asked the State, and this brings me to the consideration of another matter which is claimed to be entirely undemocratic—ship subsidy. One of the republics of South America, Argentina, imported the last year some $16,000,000 worth of cotton goods, which is about $4,000,000 larger than the whole amount taken by China from us. In other words, here is a field lying right near our door, much more profitable than the China trade, and yet of that enormous consumption the United States exports less than $500,000 worth. In other words, England and the Continent of Europe sold to our neighbors and markets which legitimately belonged to us twenty-six times as many goods made out of the raw material raised by you as we did. This strikes me as a most astounding proposition, yet it is so.

Now, I will tell you why this is so. I do not say it is the only reason, but I know two facts—the English, German and French governments subsidize their steamship lines, and we do not. And I know an additional fact—that in exporting cotton goods from the United States to certain foreign points the goods are first shipped to England and reshipped in English vessels to their point of destination for want of quick sailing vessels from the United States. Now, you may ask why there are no quick sailing vessels from the United States. The answer is, there is not enough business without government aid to sustain the lines. There may be slow sailing merchant vessels which are run very economically and tramp about from port to port, but our lines cannot compete with the rapid, once-a-week German, French and English lines.

The next question which may occur to you is why there is not business enough to support these American lines. The answer is, return cargo. Take the Argentine Republic, for instance. Their articles of exports are wheat, fresh beef, sheep, hides and tallow, for which there is great demand in Europe, but little in this country, for we raise and export the same articles ourselves. Therefore no man or no corporation is encouraged to put on a line of fast sailing steamers from the United States to Argentine Republic, because while he may have a full cargo out, he will probably have none back, and he cannot compete against the English, French and German, who is paid by his government to run his steamers. It would be good policy and good business in the federal government to appropriate annually a sum sufficient to encourage owners of steamship lines to establish these lines between American ports and foreign countries. There can be no question as a business proposition it would pay.

Oh, but it is said it is undemocratic; it is heresy to the democratic party. Boss leaders all over the country crack their whips and shout treason. Now, let us see about this. Our friends say we must not take the money of the people and pay a few individuals to make experiments and make returns on their investments, even if it does develop the country and improve the condition of the people. What is the record of democratic South Carolina along this line? The most prosperous days that have ever been seen in South Carolina were just before the Revolutionary War, when its people were growing rich and prosperous under the fostering care and bounties fed to it from the mother country. The two great staples of rice and indigo received bounties, the first by payment directly to the planter of so much per pound, and the second by navigation laws favorable to its interest. With such a beginning is it any wonder that the colony after it became a State should be quick to realize the importance of this policy to its people?

From the time the first mile of railroad was constructed in this State, notwithstanding they were private corporations, and notwithstanding that the State took the risk of never receiving any direct benefit, with no unstinting hand it put its name, by way of endorsement, on the bonds of nearly every railroad in this State.

When appropriations are made by the federal government to waterways no section of the country is more clamorous for its share than the democratic States; no congressmen at Washington are more urgent or persistent in their demands than the democratic statesmen. A few days ago there appeared in the papers a list of the appropriations that were made for the harbors and navigable streams of this State, which ran up into the hundreds of thousands, and in the last few years there have been expended upon the harbors and navigable streams in this State alone more money than would be expended by the federal government in ship subsidies for years, and all at the instance of democratic statesmen. There is absolutely no difference whatever in principle between appropriation for harbors and rivers and ship subsidies. They are both intended for the same purpose—to afford facilities for trade. The money for both is spent among our own people, the only difference being that the material results following are enormously in favor of ship subsidy, because instead of making a few harbors and rivers available, it opens up the entire waters of the globe and the continents of the earth. The boundary of the one is the sound of our drum and the flutter of our flag; the boundary of the other is space itself. Possibilities of the one is limited; possibilities of the other are illimitable. But those opposed say, here is the great difference—we own territory, that is true; but who owns the trackless waves of the ocean? Have we not as much right to them as anyone? Is not the ocean as much our territory as it is the territory of France, of Germany, of England? Yet we leave its sovereignty to them under this specious plea, and while we spend thousands and millions to open our own rivers and harbors, we must not spend a penny to make accessible to us all the rivers and all the harbors of the earth. But it is urged, further, you must not pay money to individuals or corporations to perform such services. Why not? Is it not done every day in the year? Does not the government pay the railroads money to carry the mails and to promote convenience, trade and commerce? And if a private person, a firm or a corporation will take the risk and chance of running a line of steamers from New York or Charleston to Argentina, for instance, and so enable us to sell those people down there all the cotton goods they want, better pay them to do so, and pay them quick.

It seems to me that if this question alone was a question of party, which it is not, that you and I both would be justified not in trampling platform and party under foot, but rather to rise above and beyond and out of sight of party, leaving it in oblivion, in order to secure for our people not that which is important, but that which is necessary. But the opposition exclaim this is materialism, this is money-taking, this is selfishness of the cotton-spinner. Granted. What has this materialism, this selfishness done for your country? Look around you and see. Don't they know their business better than the people not in the business? Is not what is good for them good for you and the country also? Are not we all in the same boat, to sink or swim together? If they are materialists, if they believe in the philosophy of Benjamin Franklin, is it not best for them and for you and for the country? Are they selfish? If so, it is for you also. It is not the selfishness of the miser, who takes all and gives nothing, for however great his interest, however large may be his investment, that of the country is greater, and Union city, Union county and the State at large will get from your present mills and all that are to come much more than the men who built them will ever get.

Industry at Richmond.

In his speech on Virginia Day at Buffalo Mr. Joseph Bryan of Richmond made the statement that it had been ascertained that there was a greater number of men, women and children at work in Richmond in proportion to the population than in any other city in the United States with the exception of one in Massachusetts. This situation he attributed to the great variety of occupations in the factories for the manufacture of tobacco, cotton, paper and wooden boxes, bags, clothing, paper, ornamental tin and iron. In particular he mentioned the Tredegar Works, now furnishing horseshoes to the British army; the Old Dominion Iron and Nail Works, sending its products throughout the country, and the Richmond Locomotive Works, now employing nearly 1800 men, and which constructed last year 165 locomotives of the largest size, and in the twenty-six working days of July turned out twenty consolidation locomotives weighing 187,000 tons, exclusive of tender.

The Business Men's Club of Waco, Texas, has issued a conveniently-shaped pocket book of reference, giving facts about the resources and prospects of the city in commerce, manufacturing and trade. The facts are condensed and are arranged alphabetically, according to the great variety of topics discussed. One page is devoted to a list of the industries already established in this city.

BUILDING LARGE TANKS.

Railroads Preparing to Use Texas Oil for Fuel.

[Special Cor. Manufacturers' Record.]
Beaumont, Texas, August 24.

The principal interest of the oil men at present is in getting the most money for the oil that is already found. The Guffey Company is shipping considerable via Port Arthur, and also by tank line. There is keen competition between the other companies which are now marketing their oil, and every device known to good business men is being employed to secure the coveted orders. Perhaps at this time the keenest rivalry is between the oil companies for the railroad business. Several of the roads at this time are figuring on one or two-year contracts. The Santa Fe is going into the business on the largest scale. It will erect a 40,000-barrel tank at Somerville and another large one at another division point, and in between it expects to erect eleven large tanks, but of much smaller capacity, from which the engines will take oil the same as water. These latter tanks will perhaps hold 20,000 gallons. Another large railroad company is calculating to equip one of its divisions with oil, and is about ready to conclude a two years' contract. Some of the oil companies are affiliating with the manufacturers of special makes of burners, through the aid of which they expect to secure contracts. There are one or two wells expected in today, which will run the total number of wells "in" on the Hill up to thirty-four. The peculiar part of it is that they all spout and seem to be as vigorous as was the first well struck. There is not, apparently, the least diminution in the flow of oil or of the pressure.

In a message sent to the legislature by the governor he proposes that the oil be taxed 2 per cent. This has created quite a stir among the oil operators, and meetings have already been held for the purpose of fighting the proposition. It is quite probable that if a bill is introduced to this effect a strong lobby will leave here for Austin for the purpose of contesting its passage.

Assurance is at least given the public that one well off the Hill will be drilled to its deepest possibility. The Treadaway Oil Co., located 4800 feet northeast of the National Oil & Pipe No. 1, has bought the drilling rig from its contractor, who had reached a depth of 1400 feet with a 10-inch pipe and employed the services of an expert deep-well driller, and it announces positively that if it is possible for it to do so it will go to a depth of 4000 feet. It is thought if there is any oil in that section it will strike it before it reaches that depth. It is thought it may get it at 2500 feet, figuring the "dip" on the present available data.

Kentucky Oil Fields.

[Special Cor. Manufacturers' Record.]
Somerset, Ky., August 26.

The largest deal in the history of the Kentucky and Tennessee oil field was closed last week. E. H. Holbrook and J. P. Hornaday closed a deal transferring the property of the Cumberland Basin Oil Co. to the National Consolidated Oil Co. of Louisville, Cincinnati and New York. The National Consolidated Oil Co., which thus procures 100,000 acres of choice oil territory, was organized by Eastern, Northern and Kentucky capitalists. Ex-Governor W. O. Bradley of Louisville is president. The capital stock is $5,000,000. A large number of wells will be drilled at once on its territory. E. M. Holbrook, the Eastern manager, closed a deal last Monday for two wells to be drilled in Wayne county, Kentucky. The production of the oil field is steadily increasing. The National Transit Co. is making large improvements and purchasing the oil as fast as it is being produced.

T. F. McClure and associates of Cincinnati are just completing the preliminary survey for a railroad from Burnside, Ky., to Monticello, Ky., twenty-five miles, which will connect with the Cincinnati Southern at Burnside. J. P. Hornaday of Somerset is associated with this enterprise.

ADVANCE AT BIRMINGHAM.

Improvement in Price of Iron and in Demand.

[Special Cor. Manufacturers' Record.]
Birmingham, Ala., August 26.

The iron market the past week showed an improvement both in demand and in price. The earlier sales showed no advance in price, but as the demand increased sellers became firmer in their views and demanded increased price. They obtained it. No. 2 foundry iron that opened at $10.50 with some sales, was advanced to $10.75, and that price was current market at the close of the week. This grade is in moderate supply only even with those best situated, and with some it is in very poor supply. That can be said of all the higher grades of foundry iron. No. 2 soft still holds up around No. 2 foundry, and as to supply is in about the same condition. No. 1 soft is 50 cents higher. No. 3 foundry is $10.25, and has a fair demand. No. 4 foundry was held at $9.75, and buyers paid that price for it. Gray forge was maintained at $9.50, and sales at that price were registered. Basic iron was called for, and some sales were made at $11.25. It is conservative to say that at the close of the week the market showed an advance of 25 cents over the close of the preceding week. Two causes are given for the advance. First, the paucity of stock piles in consumers' hands compelled them to supply pressing necessities at market value, and second, the apparent weakness of the strike dispelled the fear of disturbance of a serious nature to the business interests of the country. The sales for the week were fully up in volume to the output, and the changed tone of the market has given confidence to both buyers and sellers. Shipments continue good, and sales for nearby delivery are most in request. There was some export demand, and some orders were registered.

In steel there is a good demand, and no trouble to place current output. If capacity was quadrupled the output would be absorbed and the cry be still for more. The steel mill of the Republic Company is now adding to production, but the output is mainly for that company.

The Bessemer Land & Improvement Co., which also mines coal, has made a contract with the East Florida Railroad for 40,000 tons of coal, and with an Alabama railroad for 36,000 tons. Besides other smaller orders, it has secured an export order for 5000 tons per month and extending over several months.

The Excelsior Coal & Coke Co. has been incorporated, with capital stock of $100,000, and will operate the coaling and coke company properties in Tuscaloosa county. It will have its headquarters here.

The plant of the Globe Iron Bed Manufacturing Co. at Avondale is practically completed. The capacity is 150 beds per day. The Globe Coal & Coke Co., which has large financial backing and is located at Littleton, is pushing operations with all its might, as are other coal operators there. J. M. K.

FOREIGN TRADE.

This department is designed to set forth opportunities for the extension of the trade abroad of American manufacturers, and to record facts about the rapidly-developing commerce of the South.

Coal in the Mediterranean.

In a letter to the Manufacturers' Record Mr. F. Drueck of Middlesboro on Tees, who for ten years has been associated with Messrs. James Watson & Co., iron merchants, writes that he intends to start business on his own account at Genoa, where he will devote himself chiefly to the iron and coal trade. He is anxious to obtain good American agencies. He adds: "I ntice that the export of American coals to Europe, and especially to the Mediterranean, is steadily increasing, and as Italy is, so to say, a natural market for coals, Genoa alone embracing more than 4,000,000 a year, I am of the opinion that the United States will be able to compete successfully with England in that market in the near future. The only drawback at present is the question of transport, but I should think that this will be overcome in time by building steamers suitable for the trade by a governmental subsidy, or by the formation of a trust in the shipping line. Other United States articles suitable for the Mediterranean market are pig-iron, chemicals, petroleum and provisions."

Southern Trade with Manchester.

Officers of the Manchester Ship Canal Co. have recently been visiting a number of American seaports in the interest of increasing commerce between the United States and Manchester by this route. Last year fully 3,000,000 tons of merchandise were shipped directly to Manchester from this country by way of the canal. Southern cargoes make up a proportion of its tonnage, and it is stated that as a result of the visit of the Manchester officers direct lines may be placed in operation between New Orleans and other Southern ports and Manchester. As an indication of the extent of cotton business through the canal, 420,000 bales were imported by way of this route during the past season.

Rotterdam and the South.

In an interview at New York on his return from a trip to Europe, Second Vice-President James T. Harahan of the Illinois Central Railroad Co., said that while in Europe he had completed a working arrangement between the Radcliff line of steamships and the Illinois Central Railroad to run steamers between New Orleans and Rotterdam, to go into effect on September 15. The Radcliff line now runs tramp steamers between these two ports, but will operate in conjunction with the Illinois Central three steamers a month on schedule time and facilitate the shipment of American cotton to foreign ports.

Exports from Newport News.

Shipments of live-stock from Newport News continue to be extensive. Four vessels recently cleared from this port in one day, three of which carried 1000 head of cattle, in addition to other cargo. Shipments of coal to Greece are now being made from Newport News. A cargo was recently sent to Piraeus, the port of Athens, consisting of 5718 tons of New River coal.

Will Settle in the Philippines.

John W. Stanford, now serving in Company A, Sixth United States Infantry, in the Philippines, writes to the Manufacturers' Record from Calivo, by way of Iloilo, that he will resign from the army soon after January 1 to engage in lumbering and mining in the Philippines; that during the next two years he proposes to purchase about $150,000 worth of sawmill, sugar and mining machinery, agricultural implements, such as gang plows, hoes, rakes, shovels, grinding mills, etc., and that brick-making machinery, incubators, oil mills, cotton gins, woodworking machinery, pipe, etc., will also be in demand.

Notes.

The Spanish steamship Ida loaded last week at Pensacola, Fla., with a cargo of 60,000 bushels of wheat, 10,000 bales of cotton and a quantity of oak staves, valued as a whole at $450,000.

Charleston is deriving much satisfaction from the fact that the British steamship Texas, with a cargo of 5600 tons of kainit and 400 tons of sulphate of potash, entered its port last week drawing twenty-two feet three inches without the least trouble.

Representatives of the Chilian government are now in the United States purchasing rolling stock and other materials for railroads in the South American country. One order included sixteen locomotives, forty-three passenger cars and a large number of freight cars. According to the statement of the representatives, fully 2000 freight cars will be required in the near future.

Possibly a New Industry.

It is stated that what is known as the matting reed has been discovered in marshes along the Trent and Neuse rivers in Eastern North Carolina. Experts state that the reed is similar to that used so extensively in China, and that it can be readily manufactured into matting of a superior quality. As fully 300,000,000 yards are imported from China yearly, an opportunity may be afforded for a new industry in the South on an extensive scale.

The seventeenth year of the National Conservatory of Music of America, founded by Mrs. Jeanette M. Thurber, will begin September 3 at 128 East Seventeenth street, New York city, and the annual entrance examinations will be held on September 17, 18, 19 and 21. The faculty of the Conservatory includes Rafael Joseffy, Adele Margulies, Leopold Litchenberg, Leo Schulz, Henry T. Finck, Max Spicker, Charles Heinroth and others. A feature of the work of the National Conservatory is the series of concerts given by the National Conservatory Orchestra. This is composed of fifty pupils accepted on their merit and instructed free of expense to themselves. Twenty professors assist at the public performances after frequent, arduous and thorough rehearsals, and thus an artistic ensemble is secured. The proceeds of the concerts are devoted to defraying the expenses of the educational work and to increasing the supply of orchestral instruments. Mr. Leo Schulz will conduct the concerts during the fourth season.

A dispatch from Beaumont says that the Gulf, Colorado & Santa Fe Railroad Co. has contracted to take from a fuel company of that city a minimum of 9,000,000 barrels of oil during the next twelve months.

During the first three weeks of August permits for new buildings representing an investment of $166,932 were granted at Memphis, Tenn. One of the new buildings is a $50,000 factory for a screen-door company.

RAILROADS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

Goulds and Norfolk & Western.

In a recent issue of the Manufacturers' Record reference was made to a report that the Norfolk & Western Railroad might become a portion of a new system extending from a point west of the Mississippi to the Atlantic coast. A Philadelphia dispatch states that a controlling interest has been secured in the railroad by the Gould syndicate, which will use the line for the extension to the Atlantic seaboard which the Goulds have contemplated for some time past. The eastern terminus of the Gould line in the South is at Memphis, Tenn., which is reached by a branch of the Missouri Pacific. The Norfolk & Western extends to Bristol, Tenn. By building new mileage and acquiring several lines now in operation the link between Bristol and Memphis could be completed, thus forming a new route reaching St. Louis and cities further West.

Improvements at Jacksonville.

The Atlantic, Valdosta & Western Railroad Co. will erect a building for mercantile and office purposes at Jacksonville, Fla., which will be somewhat of a novelty in the South. It will be used for the general offices of the railroad, while the ground floor will be occupied by merchants. It will be 110x120 feet and three stories high, the upper stories being used for offices. In addition to this, the company has decided to erect a storehouse 105x120 feet and two stories high, and another which will be used entirely for business purposes to be 270 feet in length and 125 feet in depth. The buildings are to be named the "Atlantic," "Valdosta" and the "Western," and plans have already been prepared.

Depot at Knoxville.

A contract has been let for the construction of a passenger depot for the Southern Railway at Knoxville, Tenn. Like other structures planned by that company, it will be a decided improvement. The plans were prepared by Mr. Frank P. Milburn, official architect for the Southern Railway, and call for a building which will cost about $80,000, exclusive of terminal tracks. It will be 55x215 feet in dimensions, two stories high, and constructed of white pressed brick, with marble trimmings and slate roof. Nicholas Ittner of Atlanta has secured the contract.

Important Project.

A dispatch from Gainesville, Ga., states that the promoters of the electric railroad between Gainesville and Dahlonega have secured a site on the Chattahoochee river which will furnish sufficient water-power to generate the necessary current. In connection with the report it is stated that the company has made arrangements to float a bond issue to the extent of $750,000, and that work is to begin by October 1. A company has been formed to carry out the project, of which A. J. Warner of Dahlonega is president.

Oil Burning Engines.

The Gulf, Colorado & Santa Fe division of the Atchison, Topeka & Santa Fe system has seven locomotives equipped to burn oil as fuel, and four more will soon be ready. Oil tanks being constructed by the company for storage at several points on its line will have a capacity for 37,000 barrels each. According to a dispatch from Dallas, Texas, the company will expend about $300,000 within the next year in building tanks and altering its locomotives.

Railroad Notes.

The Chesapeake & Ohio Railway Co. has received 700 new coal cars within the last two months. The cars are manufactured from pressed steel, and have a capacity reaching from fifty to fifty-five tons each.

The Louisville & Nashville Railroad Co. has purchased the Shelbyville, Bloomfield & Ohio Railroad, extending between Shelbyville and Bloomfield, twenty-six miles. This road wil be operated as a branch of the Louisville & Nashville.

Mr. Alexander D. Anderson of Washington, D. C., one of the leading advocates of expositions in this country, has prepared a valuable pamphlet entitled "Charleston and Its Exposition," which will do much to advance the interests of the exposition and the city. His pamphlet, which is illustrated with ten maps and diagrams, shows the advantageous position of Charleston as a seaport, its harbor facilities, the resources of its tributary country, with its railway facilities and the opportunities for foreign trade, particularly with the West Indies and Central and South American States. He asserts that the exposition, which will open at Charleston next December, will help to develop the American culture of silk and tea, to promote Southern manufactures of cotton and iron, to establish new steamship lines from Charleston, and to demonstrate the advantages of that city as a connecting link between the producers of the Southeastern States and the Mississippi valley on one side and the markets of the world on the other.

QUOTATIONS OF COTTON YARNS.

By Buckingham & Paulson, New York, Philadelphia and Chicago, August 27.

No. 10s-1 and 12s-1 warps	13 @13½
No. 14s-1 warps	13½@14
No. 16s-1 warps	14 @14¼
No. 20s-1 warps	14 @14½
No. 22s-1 warps	14½@—
No. 26s-1 warps	15 @—
No. 6s to 10s bunch yarn	12½@13
No. 12s-1	13 @—
No. 14s-1	13½@—
No. 16s-1	13½@14
No. 20s-1	14½@15
No. 22s-1	15 @—
No. 26s-1	15 @—
No. 8s-2 ply soft yarn	12½@13
No. 10s-2 ply soft yarn	13 @—
No. 8s-2 ply hard	12½@—
No. 10s-2 ply hard	12½@13
No. 12s-2 ply hard	13 @—
No. 14s-2 ply	13½@—
No. 16s-2 ply	14 @—
No. 20s-2 ply	14½@—
No. 24s-2 ply	15½@—
No. 26s-2 ply	15½@—
No. 30s-2 ply yarn	16½@—
No. 40s-2 ply	22 @22½
No. 8s-3, 4 and 5 ply	12½@—
No. 20s-2 ply chain warps	15 @—
No. 24s-2 ply chain warps	16 @—
No. 26s-2 ply chain warps	16 @—
No. 30s-2 ply chain warps	17 @18
No. 16s-3 ply hard twist	14 @—
No. 20s-3 ply hard twist	14½@—
No. 26s-3 ply hard twist	15½@—

Clearwater Bleachery & Manufacturing Co. of Clearwater, S. C., was mentioned last week as having completed its $300,000 plant. The main building is a 250x333-foot structure. Both steam and water power is used, and the equipment of machinery for bleaching, dyeing and printing is of the most modern type. The first cloth went through the processes this month. Thos. Barrett, Jr., of Augusta, Ga., is president.

The Real Estate Commercial Investment Co. of No. 1 Montgomery Building, Jersey City, N. J., announces its intention to establish a silk mill in Jacksonville, Fla., work to commence in November, and completed plant to employ 300 hands.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

Record of Inventive Progress.

Since 1816, when Ira Draper patented in the United States his first loom improvement, the name of Draper has been closely identified with the history of American invention as applied to improvements in machinery of the cotton-manufacturing industry. The important part played by what is known now as the Draper Company of Hopedale, Mass., will be appreciated by careful reading of the little volume, "Textile Texts for Cotton Manufacturers," written by Mr. George Otis Draper. This contains a mass of valuable material concerning the proper methods of equipping and running mills, with special treatises on carding, spinning, spooling, warping, dyeing, reeling, twisting and weaving, with a general history of cotton and cotton manufacturing, and mathematical tables bearing upon the construction and use of the machines, forming in all a useful compendium of information for everybody connected with the manufacture of cotton, cloth or yarns. In it is published also a full list of the patented cotton machinery introduced and sold by the Draper Company. As the Draper name and Hopedale are connected with so many valuable inventions in cotton-manufacturing machinery, it may be of interest to reproduce some statements regarding inventions made in this handy volume. In connection with the publication of a list of patents turned over to Hopedale interests by those who have been directly employed by the various Draper organizations and their predecessors up to January 1, 1901, it is stated that several of the patentees named had invented before or since their employment at Hopedale, so that the list does not necessarily show the total sum of inventions per individual. Several patents are included twice or more when of joint invention, but there are 641 distinct cases in the lot, representing at least $64,100 for patent fees and legal expenses and litigation, and at least ten times the amount for experiments, and it does not include the payments made to the inventors, either directly or indirectly, or the 741 additional inventions acquired from outsiders. The Draper Company keeps a large force of inventors and draftsmen constantly busy over the betterment of its products, and has paid hundreds of dollars for inventions that have never been of the slightest value, has purchased hundreds of patents for no purpose but protection against the possible competitor, and has made thousands of patterns for machinery that never left the works.

To Make Textile Machinery.

Announcement is made of the completion of arrangements for the establishment of a plant at Gaffney, S. C., for the manufacture of textile machinery and cotton-mill supplies. Plans have been prepared for a two-story building 122x300 feet in size, and equipment will be installed as soon as the structure is completed. Contractors have commenced work on this building. Messrs. Hugh S. Dodenhoff of Gaffney, S. C., and James W. Brock of Boston, Mass., who represent the Northern parties who will own and operate the plant, have purchased thirty acres of land as site. About $200,000 will be invested.

A 7200-Spindle Mill for Georgia.

Arrangements have been completed for the establishment of a 7200-spindle cotton factory at Middleton, Ga., and the work of construction is to be commenced at once. The plant will have looms also, 250 in number, and is to employ, when completed, about 250 operatives. Application for charter has been made under the title of Bannockburn Cotton Mills, capital stock $80,000, and privilege of increasing to $200,000. The incorporators are Messrs. C. C. Grogan of Elberton, Ga.; J. H. Hicks of Clarkesville, Ga.; H. H. Smith and Cuyler Smith of Atlanta, Ga., and J. H. Bromley of Philadelphia, Pa.

South Carolina Mills.

Preliminary figures regarding cotton-mill property in South Carolina given out by the State board of assessors are as follows: Capital stock when organized, $19,364,500; bonded debt, $2,113,000; value of plant, $20,348,520; number of bales annually consumed 514,236; number of spindles, 2,003,989; number of looms, 71,156; number of employes, 43,088; estimated population mill settlement, 69,620; assessed value for taxation, $16,295,814.

Doubling a 3000-Spindle Mill.

The stockholders of the Ashcraft Cotton Mills of Florence, Ala., have determined upon doubling their plant. Accordingly plans have been obtained for an additional building, and work of constructing same has been commenced. The new machinery will consist of 3000 spindles, 100 looms and other necessary complementary apparatus, and the contract for supplying this equipment has been placed by C. W. Ashcraft, president.

Textile Notes.

It is rumored that John K. Garnett of Glenn Springs, S. C., will build a cotton factory.

It is rumored that a company will be organized to build another cotton mill at Harmony Grove, Ga.

The Board of Trade at Charlestown, W. Va., has under consideration a proposition of Philadelphia parties for establishing a hosiery knitting mill to employ 200 hands.

The Pennant Knitting Co. of 2412 Hope street, Philadelphia, Pa., has removed to Shepherdstown, W. Va., its plant and commenced operations, producing cotton seamless hosiery.

A dispatch from Victoria, Texas, states that a shipment of 350 round bales of cotton from the Goldman Ginnery & Mills Co. to Bremen on the 15th of August will probably be the first cotton in any large amount from the new crop to be landed in Europe.

It is proposed to build a cotton mill for the manufacture of yarns at Laurens, S. C., the investment to be $25,000. Complete equipment for dyeing and mercerizing is to be included in outfit. L. A. McCord is interested, and is asking builders of machinery to correspond.

Messrs. T. N. Dulin, R. M. Dulin, J. W. Smith and T. J. Patrick of Bowling Green, S. C., lately reported as organizing kniting company, have secured subscriptions to the amount of $15,000, and will arrange for erecting plant. It is proposed to manufacture underwear, gloves, etc. Robert M. Dulin will be secretary-treasurer.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record,
Baltimore, Md., August 28.

In local phosphate circles the business of the past week has been light, as in all other fertilizer ingredients. Manufacturers of fertilizers are buying only in small lots for immediate use. The phosphate charters reported were the steamer Ben Cliff, 1385 tons, from Port Royal to Dublin at 10/6, prompt; British steamer Leven, 1507 tons, from the Gulf to the United Kingdom or Continent on private terms, and the bark Silicon, 426 tons, from Tampa to Philadelphia on private terms. From all points in the Southern phosphate field reports are to the effect that the output will show considerable increase during the remainder of the year. In South Carolina mining is being vigorously pursued, and the foreign demand for rock seems to improve. The domestic inquiry is moderate, while prices continue to rule nominally steady. The movement among Florida miners, both in the hard-rock and pebble districts, is fairly active, and shipments to terminal points have been better during the week. Shipments of rock from the Florida ports are expected to improve during the month of September, which is borne out by the number of recent charters. Prices for both hard rock and pebble are generally steady, and transactions are mostly for 1902 delivery. In the Tennessee field the market is somewhat unsettled, owing to the proposed scheme of organization now in progress at Mt. Pleasant. It is stated that there is very little rock above ground, and the general opinion prevails that prices will be fully maintained during the balance of the year. Prices, however, continue steady at $2.75 per ton for 75 per cent. rock and $3 to $3.25 for 78 per cent. Shipments of Tennessee rock last week from Pensacola to foreign ports amounted to 3700 tons.

Fertilizer Ingredients.

Leading ammoniates show very little change in position during the past week. The market has ruled quiet, with a light volume of business. Western packers are still firm in their views, and decline to make concessions. Buyers look for lower values, but the demand which will shortly ensue from Southern sources and from other points, it is stated, is likely to give a hardening tendency to values. Sulphate of ammonia and nitrate of soda are both firmer.

The following table represents the prices current at this date:

Sulphate of ammonia (gas)	$2 70	@	2 72½
Nitrate of soda, spot Balto	1 85	@	1 90
Blood	2 27½	@	2 30
Azotine (beef)	2 35	@	—
Azotine (pork)	2 35	@	—
Tankage (concentrated)	2 20	@	2 22½
Tankage (9 and 20)	2 30 & 10	@@	2 35 & 10
Tankage (7 and 30)	20 00	@	21 00
Fish (dry)	27 50	@	30 00

Phosphate and Fertilizer Notes.

The shipments of Tennessee phosphate rock from the port of Pensacola for the week ending the 23d inst. amounted to 3700 tons.

It is stated that phosphate has been found in large quantities at Lake George, Fla., so that this section of Marion county is likely to become prominent.

The Imperial Fertilizer Co. of Norfolk, Va., has been making some very decided improvements in its plant at Money Point. One four-story and two one-story buildings have been erected and new machinery is being installed. When all improvements are completed the plant will have a capacity of 150 tons of fertilizer a day.

The movement of phosphate rock from the Mt. Pleasant district in Tennessee, as reported by railroad officials, for the month of July was as follows: Domestic, 17,020 tons; export, 10,909 tons—total, 27,929 tons. The total from January 1 to July 31 amounts to 139,634 tons domestic and 85,033 tons export, making a grand total of 224,667 tons of all grades shipped.

Cottonseed-Oil Notes.

It is reported that Mr. H. S. Royster of Norfolk, Va., is to erect a cottonseed-oil mill at Tarboro, N. C.

The Wortham Cotton Oil Co. of Wortham, Texas, has amended its charter by increasing its capital stock from $25,000 to $40,000.

Mr. W. Newton Smith, owner of the Tarboro & Conelo Cottonseed Oil Mills at Tarboro, N. C., has sold his mills to the Southern Cotton Oil Mill Co. The consideration is said to be $36,000 cash and $14,000 deferred payment on stock.

The Bryan Cotton Oil Co. of Bryan, Texas, has been chartered, with a capital stock of $60,000, to establish and operate an oil mill. The incorporators are J. W. English, A. D. McConico, E. K. Erwin, R. J. Patterson and J. W. Singleton.

The Caldwell Cottonseed Oil Mills of Caldwell, Texas, started on its regular run for the season on the 20th inst. During the summer months many repairs have been made and improvements added. New seed is coming in rapidly, and the mill is running on full time.

It is stated the reports to the cotton-oil mills of Texas by their own correspondents put the Texas cotton crop of the present year at 3,250,000 bales, or less by 1,000,000 bales than last year. One hundred and fifty oil mills in Texas and the Indian Territory are arranging to feed 300,000 cattle and half as many more on second feed.

It is understood that the Virginia-Carolina Chemical Co. has purchased the Gate City Oil Mills at Atlanta, and has also bought out all the other interests and holdings of John Oliver of that city. In the sale is also included the Oliver plant at Charlotte, N. C. Both plants are large and modern in equipment, and have both refineries and crushers. It is also reported that the Olivers have sold their holdings of cottonseed oil in New York, said to comprise the bulk of stock in public stores amounting to 35,000 or 40,000 barrels.

The following are the official quotations of cotton and cottonseed products as posted at the New Orleans Cotton Exchange on the 26th inst.: Prime refined oil in barrels, per gallon, 36 to 37 cents; off refined oil in barrels, per gallon, 35 cents; prime crude oil, loose, per gallon, nominal; prime cottonseed cake, per ton 2240 pounds, $24; prime cottonseed meal, per ton 2240 pounds, $23.75; soap stock, per pound, 1 cent; linters, per pound—A, 3¾ cents; B, 3½ cents; C, 3 cents; cottonseed in sacks, delivered at New Orleans, per ton 2000 pounds, $10; in bulk, delivered at New Orleans, per ton 2000 pounds, nominal.

Mr. R. W. Lightburne, Jr., who represents at Kansas City several steamship lines plying between New Orleans and Europe, said in an interview at New Orleans that some of the most influential and wealthy millers in Kansas City and other points in the West are seriously considering the question of the erection of one or more mammoth grain mills at New Orleans.

It is reported that Prof. Edward M. Sheppard of the Missouri geological survey has discovered black oil worth $10 to $12 a barrel in Bates county, Missouri.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.

Baltimore.

Office Manufacturers' Record,
Baltimore, Md., August 28.

In the local lumber market during the past week the volume of business has been fair, considerable material moving through the usual channels. The demand from Northern and Western sections is improving, and from Ohio and Pennsylvania some very fair orders have been received. The North Carolina pine trade shows much better indications for business later on, and at the moment prices are rather firmer under an improved demand. Numerous inquiries are coming to hand, which will shortly develop considerable actual business. There is considerable call for dressed lumber, which keeps planing mills busy. Box lumber is also moving more freely, and box factories are generally having a good run of work. Georgia pine commands good prices, and receipts have been fair during the week. White pine is more steady as to values, and the demand shows up in better form. The hardwood trade continues to show some improvement, both in the volume of business and strength in prices. Oak and ash continue in good demand. Poplar is also selling freely, with prices firm for all desirable stock. The foreign export business in hardwoods continues to show very little additional change in the volume of transactions. Shipments of oak, ash and other woods have been light during the past week.

Norfolk.

[From our own Correspondent.]

Norfolk, Va., August 26.

The local lumber market continues to show a good volume of trade, and the prospect for future business is of a very encouraging character. All saw-mills in the North Carolina pine belt report orders as coming in very freely and the stocks showing very little accumulation. There is a brisk demand for dressed lumber from Pennsylvania and Ohio, and large shipments of dressed stock are being made to these points. The foreign inquiry is improving, and several shipments of kiln-dried lumber are going forward this week. There is, however, a light volume of trade with Great Britain and continental ports, owing to heavy stocks at these markets and an easy tone to values. Planing mills at this and other milling points are all very busy and have more orders on file than they can take care of in the next sixty days. Retail yards here are buying freely of the various grades of lumber and timber, as the local demand at the moment is quite pronounced. The real estate market is in good condition, and investors are much interested, while the demand is steady for city properties and for suburban lots. There is a moderate offering of desirable tonnage, and rates of freight continue steady, with shipments by water rather lighter than usual during the past week.

Savannah.

[From our own Correspondent.]

Savannah, Ga., August 26.

The outlook for a good average trade in all branches of the lumber industry of Southern Georgia is at the moment quite encouraging, and the demand from Northern sources has been better during the present month than for some months past. The demand from railroads is also better than usual, with a good inquiry for dock and wharf timber. The foreign inquiry is fairly active, and orders are being received from South America, the United Kingdom and continental ports. The list of prices is at present firm for all desirable stock, and in certain grades a slight advance is noted. At Brunswick the activity in all lines of the lumber trade is decidedly active, and the opening of the Brunswick & Birmingham Railroad will give millmen immense tracts of virgin forest for development, while the completion of that line will change the features of trade at Brunswick, increasing materially the volume of business in all wood products. Saw-mills are already going up along the line of road. At Hortense J. H. Strickland is establishing a saw-mill plant. Messrs. O. W. Taylor & Co., who own one of the largest cypress mills in the Brunswick section, are engaged in opening up the Big Buffalo swamp, which, it is estimated, will yield from 20,000 to 30,000 large cypress logs. A tramroad is being built from the swamp to the Brunswick & Birmingham Railroad which will haul the timber to Haytor's mill via a connecting line to be built from "Four-Mile Crossing." Vessels are more plentiful, with rates very steady and showing an advancing tendency, being now quoted $5.50 per New York.

Mobile.

[From our own Correspondent.]

Mobile, Ala., August 26.

The lumber and timber market has ruled quiet during the past week, and the volume of business is confined to narrow limits. The timber trade especially shows but little activity either here or at Pensacola, business being unusually quiet at the latter port. Considerable timber is being received by brokers, and but few sales of any moment are being reported. The market for sawn timber is quoted at 10½ to 11 cents per cubic foot, 40-foot basis, and contracting is merely nominal. Hewn timber continues dull and nominal. Hewn oak is in limited demand at 15 to 18 cents per cubic foot, and hewn poplar at 12 to 12½ cents per cubic foot. There is a fair demand for pine saw logs at $5 to $8 per 1000 feet, according to average and quality. Poplar logs are selling at $6 to $8 per 1000 feet, and oak logs at $8 to $12. The lumber market, while rather quiet, continues to show a steady tone to values for all desirable grades. Heart lumber is quoted at $18 to $20, and rough heart $13.50 to $16; flooring, $8 to $14, and common ceiling, $7 to $11. The shipments for the past week amounted to 1,002,413 feet, and for the season 106,291,347 feet, against 141,503,676 feet last season. The recent storm has had the effect of restricting business at certain milling points, but mills generally are fast recovering from its effects. There is some demand for lumber from Cuban ports, and also from South America and continental ports, and with more settled market conditions abroad considerable trade will be developed. The freight market continues steady as to rates, and the offering of desirable vessels is moderate. Charters last week were the British steamer Somerhill, 1478 tons, from Pensacola to Holland with timber at 95/, option United Kingdom at 97/6, prompt, and the Austrian steamer Indeficienter, 1468 tons, from the Gulf to Naples and Trieste with timber at 105/, October.

Memphis.

[From our own Correspondent.]

Memphis, Tenn., August 26.

The demand for the various classes of hardwood on this market during the week has been satisfactory. The export division of the market has shown some further improvement. The demand for the oaks, particularly plain and quartered white, has given more evidence of in-

creasing activity than any other items offering here. The domestic trade has also continued to improve steadily. This is especially true of quartered red, which has been slow throughout the summer. The interior is taking large quantities of cypress. Poplar has been a free mover, too, especially in the dressed stock and the 13x17-inch box boards. Plain red oak has gone forward about as freely as stocks would allow. Cottonwood in the upper grades has not been as difficult to dispose of as was the case some weeks ago, though there is no improvement in sight in the lower grades of this wood. Ash has been taken with a fair degree of freedom. Most of the city mills continue to run on full time. In interior portions of the district the mills have either resumed operations or intend doing so in a few days. The log supply promises better now than at the end of the previous week. The tendency of prices is rather upward, advances of as much as $1 per thousand having been scored on some of the leading items.

Beaumont.

[From our own Correspondent.]

Beaumont, Texas, August 24.

As has been predicted in previous letters, new price-lists are beginning to appear. There is no simultaneous issue of these in Texas on account of the anti-trust law, and each mill issues them as it sees fit. Therefore, when several of them within the course of two weeks get out new lists, it is taken as an indication that the manufacturers at least are looking for better prices, and consider that the times warrant the same. During the last week two of the new lists have been issued by two of the largest manufacturing firms in Texas. They show material advances on some items. Flooring, ceiling, finishing, siding, etc., has been advanced $1, while 1x12 has been advanced from 50 cents to $1 for the common grade of material; 2x4 common has also been put to $15.50, this latter figure being the highest list price ever made on common piece stuff, and affords an idea of how short the lumber mills are in Texas and Louisiana. Even at the new lists the mills are refusing considerable business, for the reasons that they either have not the stock or are not able to ship it within the time limit specified by the purchaser. There is a constantly decreasing stock at the mills in Texas and Louisiana, and where the lumber is to come from to fill the demand that is expected to develop this autumn is a mystery. Clear and star grades of lumber, for the making of finished material, are extremely scarce. It is understood that within a week or ten days additional lists will appear, so that the prediction made that 2x4 would be selling for $16 seems likely to be fulfilled soon. Various reasons are assigned for this present activity; one is that the great Kirby Lumber Co. is scaring many of the dealers up, and they are placing large orders before this company goes actively into business, when, in their opinion, it will immediately raise the price of lumber at least $1 from no other cause than that of its own weight, which many also think will be sufficient to sustain it. Then it is also the beginning of the season when business usually opens, and the prospects of a good crop of cotton naturally makes business good in the country. The business is not confined to any one portion of the State, but seems to be pretty general. The mills are away behind with their orders, and it is doubtful if they catch up again this year. These conditions, of course, apply to the Louisiana long-leaf mills as well as Texas institutions, for they are all considered in one district. But it is really more difficult today to buy lumber than it is to sell it. Time was when a buyer for one of the larger mills could go among the smaller mills and get all the lumber he wanted of any class, and practically at his own figures, but this is not so today. The little manufacturer is learning to deal direct with the customer. This he can do as long as the customer can pay cash, as is the case at this time. The mills are also almost choked with orders for railroad and other bill material. It seems as if in every town of Texas there was building either an oil mill, a rice mill, cotton shed or rice warehouse, or some such concern, requiring a lot of saw stuff, and it is difficult for the mills to satisfactorily handle the business. The export business has shown a little sign of life recently; there have been a few enquiries in the market, and the rumor of a South African order for 80,000,000 feet has kept many of the exporters on the qui vive, but whether there is anything in it or not is not known. One of our exporters, however, is going across to see into the matter and endeavor to land a portion of the order for Texas and Louisiana mills.

Lumber Notes.

A new factory building to cost $30,000 will be erected by the Ware Furniture Co. of Atlanta. The structure will be of brick, five stories high and 70x200 feet in dimension.

The saw-mill of the Leeton Lumber Co. of Kirbyville, Texas, was burned on the 18th inst., with the lumber in the yard. The loss will be in excess of $10,000; insurance not known.

Receipts of lumber at the port of New Orleans for the week ending August 23 amounted to 1,794,000 feet, of shingles 222,000, laths 300,000 bundles, oak staves 147,200, and cypress staves 54,000.

The Page Company of Gastonia, N. C., was incorporated last week, with a capital stock of $20,000, of which $12,000 is paid in. The company will manufacture and deal in sashes, doors, blinds, etc.

The Reeves-Hopkins Lumber Co. at Lynn, Harrison county, Mississippi, with a capital of $10,000, and the Eureka Lumber Co. at Lux, Jones county, Mississippi, with a capital of $30,000, were chartered last week.

The Plant City Lumber Co. of Ashboro, N. C., has been chartered, with a capital stock of $25,000. C. P. Finch of Thomasville and others are incorporators. The company will manufacture furniture, also sash, doors, etc.

The Stone-Huling Lumber Co. of Sullivan county, Tennessee, has been chartered, with a capital stock of $50,000. The incorporators are James A. Stone, William R. Stone, C. H. Huling, H. E. Jones and John W. Price.

Messrs. O. N. Taylor & Co., who own one of the largest cypress lumber mills in the Brunswick section in Georgia, are engaged in opening up the Big Buffalo swamp, which, it is estimated, will yield from 20,000 to 30,000 large cypress logs.

The Alabama Lumber Co.'s saw-mill at Huntsville, Ala., which was destroyed by fire several weeks ago, is being rebuilt, with an increased capacity. The new plant will be double the size of the old one, and the equipment will be of the latest type.

Several Delaware capitalists having as associates Thomas E. Trenchard and William Trenchard of Maryland have purchased 1000 acres of pine land in Northumberland county, North Carolina, a saw-mill and fourteen houses and stores for $68,000.

A transfer of the great body of the McCormick round pine lands near Fayetteville, N. C., valued at about $51,000, is about to be made to Messrs. W. G. and J. F. Williams and W. J. Johnson, extensive lumber dealers of Red Springs, N. C., who form the Hornett Lumber Co.

The Greenwood Lumber & Manufacturing Co. of Greenwood, S. C., has been chartered, with a capital stock of $5000. The officers are S. P. Brooks, president and treasurer; J. G. Jenkins, vice-president; J. R. Abney, S. B. Marshall, J. G. Jenkins, W. V. Blyth and S. P. Brooks, directors.

The Vinegar Bend Lumber Co. of Vinegar Bend, Ala., is building a railroad, with thirteen miles completed, westward through a large forest of virgin pine into Mississippi. It will cross the Mobile, Jackson & Kansas City Railroad, and may be extended to reach the Gulf & Ship Island.

A deal for 1,500,000 feet of hardwood lumber in the log at Franklin, Ky., has just been closed by H. M. Fisher, an extensive lumber dealer from Indiana. He will erect a large saw-mill at that point to convert the timber into a marketable product. The timber consists entirely of oak and hickory.

The Jetton-Dekle Lumber Co. of Tampa, Fla., has been chartered, with a capital stock of $30,000. The company proposes to build and operate saw-mills and manufacture all kinds of lumber, building material, etc. The incorporators are M. M. Jetton, Lee Dekle, J. C. Griswell and H. McFarland.

The planing mill and door and sash factory of Willard Eanes in Chesterfield county, Virginia, was destroyed by fire on the 21st. inst., with machinery and contents. Between 50,000 and 100,000 feet of dressed lumber, the property of the Pocahontas Lumber Co., was destroyed. The total loss is $10,000, with insurance $4000.

The saw and planing mill and contents, with the dry-kiln of the Blacksher-Miller Lumber Co. of Brewton, Ala., was destroyed by fire last week. About 1,000,000 feet of dressed lumber and considerable rough lumber on the yard was also burned. The loss is over $25,000, with insurance on the saw and planing mill of about $15,000.

The new planing mill in the course of erection at Money Point, Norfolk, Va., by the Roanoke Railroad & Lumber Co. is nearing completion. The main building, 120x138 feet, is completed, and the two timber sheds are ready for use. Nearly all the machines with which the mill will be equipped have arrived and are being placed in position. Operations are expected to begin October 1.

The Forest Lumber Co., of which Mr. W. W. Green of Beaumont, Texas, is president, has purchased the saw-mill of W. H. Aldridge, located on the Gulf, Beaumont & Kansas City Railroad a short distance above Beaumont. The equipment and property of the Aldridge mill will be used to increase the capacity of the plant of the Forest Lumber Co., which will be about 40,000 feet of lumber per day.

The following vessels were among the clearances last week from Jacksonville, Fla.: Schooner W. H. Skinner for New York with 264,000 feet of yellow-pine lumber; the schooner J. S. Hopkins for Salisbury, Md., with 1,200,000 shingles; steamship Roanoke for Philadelphia with 275,000 feet of yellow-pine lumber; steamship Algonquin for New York with 275,000 feet of lumber, and steamship Seminole for the same port with 240,000 feet of lumber and 1600 hewn ties, with other cargo.

It is stated that the Ensign-Oscamp Lumber Co., with headquarters at Ocilla, Ga., is figuring on a deal with Mr. W. H. Anderson by which it will sell to him all its land and timber in Irwin, Worth and adjoining counties, consisting of thousands of acres of the finest round timber in the South. The Ensign-Oscamp Company owns, besides its immense bodies of land and timber, two of the largest saw-mills in Georgia. It is understood that all the mill and railroad property will be included in the deal now being under negotiation.

The Chesapeake Furniture & Woodworking Co. of Norfolk, Va., recently chartered, has purchased a site of twenty-six lots on the Norfolk & Western terminal tracks in that city. The plant to be established will be equipped with the latest improved machinery. The main building will be of brick, 60x200 feet in dimensions. The following are the officers and directors of the company: T. H. Synn, president; H. B. Nichols, vice-president; R. Roles, general manager, and J. J. Burroughs, T. H. Synn, H. B. Nichols, R. P. Waller, Peter Wright L. Shefski and M. W. Burke.

Literary Notes.

Scribner's Magazine for September begins a notable series of three articles, to run through the fall numbers, giving in a condensed and graphic way the history of "The United States Army" as a fighting machine, from Washington's assuming command at Cambridge to the capture of Aguinaldo. The announcement of Major-General Francis V. Greene as the author of these articles will particularly commend them to well-informed readers. General Greene by descent and by actual experience has the closest connection with the regular army. He is a collateral descendant of General Nathaniel Greene of Revolutionary fame, and the son of General George S. Greene, who distinguished himself in the civil war, and he himself is a West Pointer, a distinguished writer on military subjects, and, as everybody will recall, received the surrender of Manila. What General Greene has written is not a history of wars, but a narrative of the organization and development of the army. It is peculiarly appropriate at this time, when the new army bill has just gone into effect, to recall the preceding stages of its development. The narrative, of course, includes brilliant pen pictures of great generals, and condensed and graphic descriptions of their campaigns. The illustrations for this series have been made on the same generous plan which made noticeable the "Cromwell" and the "Revolution" in this same magazine. They include pictures by Howard Pyle, F. C. Yohn, Zogbaum, Remington and other military artists.

Among the leading articles in The Chautauquan for September are the following: "A Florentine Monk's Romance," by Elizabeth M. Elgin; "A Day in Teneriffe," by Mary Cholmondeley; "Mammy's Love-Story," by Julia B. Tenney; "The Hearing Ear and the Seeing Eye," by N. Hudson Moore; "The Ruin and Legend of Kynast," by Anna Louise Vester; "The Beatification of a Saint," by Charles Burr Todd; "A Pestalozzian Pilgrimage," by S. Louise Patteson; "Indian Basketry in House Decoration," by Geo. Wharton James; "Historic Swords," by Randolph Iltyd Geare; "A Black Hussar at Waterloo," by Francis N. Thorpe, and "Mission Schools in China," by Mary H. Krout.

The sales in the Joplin (Mo.) district during the week ended August 24 were 9,341,720 pounds of zinc ore and 1,393,690 pounds of lead ore, valued in all at $137,748.

MECHANICAL.

The Chase Wood-Rim Pulley.

The Chase Pulley Co., 201 Pitman street, Providence, R. I., manufactures a pulley which has a wide reputation in the mechanical world. It is made entirely of iron with the exception of the wood rim and bored out to shaft size, keyseated and fitted with set-screws the same as an iron pulley. It is made either solid or split, with clamp hubs, and may be put upon a shaft as a solid pulley and taken off without removing the shafting by sawing the rim open.

The arrangement of the hub permits large pulleys to be put on shafting without recourse to driving, a method liable to strain the hubs and weaken the pulley. The rims are composed of thoroughly kiln-dried wood segments glued together, and further secured with long steel-wire nails. Every pulley is actually balanced. Large pulleys capable of sustaining any amount of horse-power and fast-running pulleys for cotton-mill and electrical work are a specialty of this firm.

This is emphatically the period of fast-running engines, machinery and shafting, and the many accidents constantly occurring caused by the bursting of pulleys and flywheels have demanded an article that shall be safe and reliable. A properly-constructed wood-rim pulley composed in all other respects of iron, bored to shaft size, fitted with set-screws and key slots, and having the fewest parts, has proven during a test of several years to be the one that is safe and reliable. The Chase wood-rim pulley is of this class. Its record shows that it can be run with perfect safety at very high speeds without bursting the rim, and that it is capable of transmitting large amounts of horse-power. It is also made in any diameter, thus making it equally applicable for flywheels as well as for smaller diameters.

CHASE WOOD RIM PULLEY.

Ransome Concrete Mixers.

The Ransome concrete mixers are notable examples of labor-saving machinery, and are being used extensively in railroad construction, dam and reservoir work and other operations necessitating the use of concrete. The mixers are of two distinct types, represented by the drum and the continuous mixer, respectively.

The drum mixer is a rotary barrel. It is fed in batches through an opening in the center of one of its heads, and the material after being mixed is automatically discharged through an opening in the other head. It is portable, and is eminently adapted for use in the construction of sidewalks, walls, fireproof flooring, railroad work and the general run of concrete work where the material is required to be specially well mixed, so the greatest strength can be obtained with the minimum quantities of cement. For thorough admixture of the material this mill is unexcelled. To largely increase the strength of the concrete, or to save from 20 to 50 per cent. of the cement and yet obtain results equal to those usually obtained in hand-mixed concrete, it is only necessary to carefully adjust the proportions of the various aggregates and prolong the action of this mill upon the mixture.

The drum mixer consists of a hollow, rotating iron and steel drum, having openings in its heads. Inside this drum are kneading wings for mixing and hinged shelves, by which the concrete is lifted and thrown into a chute. These shelves are set for mixing or discharging by the movement of a lever without stopping the machine. The drum is carried upon four chilled friction rollers, the bearings for which are supported upon the frame of a truck. The truck consists of a stout wooden frame, steel axles, wrought-iron wheels, a fifth wheel and a pole. Power is transmitted to the drum through a pulley and gears attached to countershafts, the brackets for supporting which are carried on the truck. Passing through the drum and supported upon the truck is a folding chute, which receives the concrete from the drum and delivers it to the wheelbarrow or other receptacle used for conveying the concrete away. The wearing parts of this mixer, being chilled, last long, are not easily disordered, and, when necessary, can be readily replaced. This mixer is entirely self-contained, and can be set and running within five minutes after its arrival if the motor is on the same truck. If the power is furnished by belt from an outside source, it will only occupy sufficient extra time to place the mill in line before it is ready for running. In operation the mixer is drawn to the required place, power applied and the mixer started.

The continuous mixer is adapted for turning out almost unlimited quantities of concrete with the greatest speed and the greatest possible saving in labor.

It is entirely automatic in its action. It will receive the various materials direct from the carts, railway cars, etc., and automatically measure and mix them without any assistance whatever. One man only is required to oil up and adjust output, etc. If, however, it is desired to check the output and make it intermittent, a second man is needed. These mills can be made of any size. There is no known limit to their capacity.

On large works, such as dams, docks, fortifications, etc., this mixer will automatically measure, mix and deliver the materials at a cost of less than three cents per cubic yard.

This machine automatically measures and feeds the several materials separately in the required proportions, and then thoroughly mixes them.

The mixer is built entirely of iron and steel, and is placed upon skids.

Provision is made for running by belt unless otherwise ordered.

It consists of four bins with easily adjustable openings. These bins receive the cement and the various aggregates, regardless of quantity or proportion.

Immediately beneath the bins is the measuring and feeding mechanism, working over a trough into which the materials are fed and mixed. The mixed concrete is discharged from the end of the trough into a hopper or car, the discharge opening being provided with a suitable hopper. The bin gates being set for the required proportions of the various materials, the machine carries on the work of measuring, feeding, mixing and discharging with perfect automatic action, it being only necessary to keep the bins supplied and to turn on the right quantity of water.

These mills can be constructed to measure and mix almost unlimited quantities of concrete, and but two attendants are usually required. A modification of the mill is designed for street work.

Further particulars may be obtained by addressing the Ransome & Smith Co., 17-19 Ninth street, Brooklyn, N. Y.

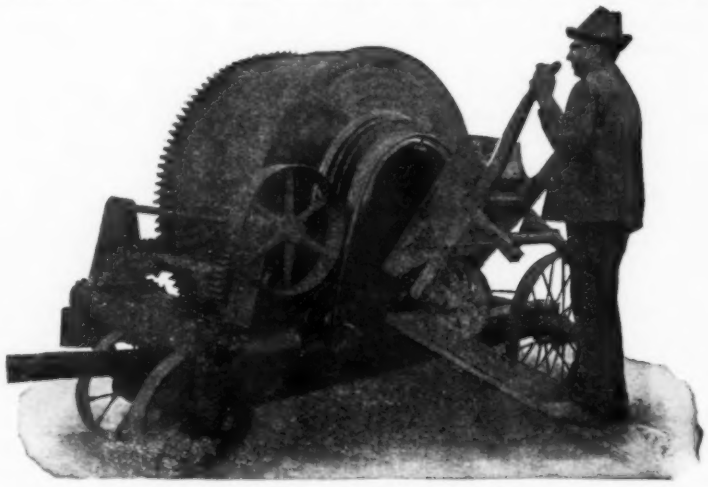


FIG. 2.—RANSOME CONCRETE MIXER.

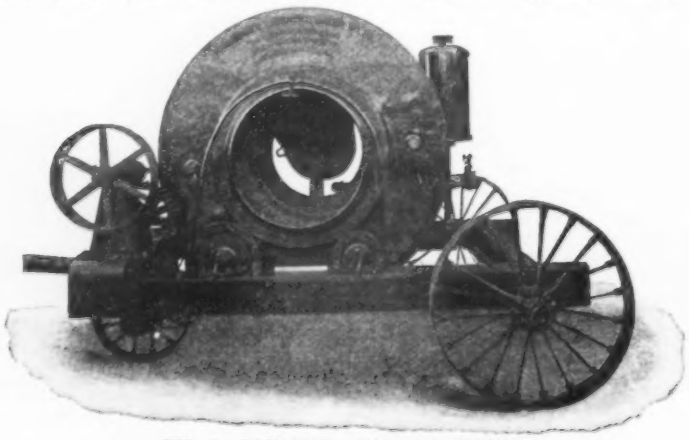


FIG. 1.—RANSOME CONCRETE MIXER.

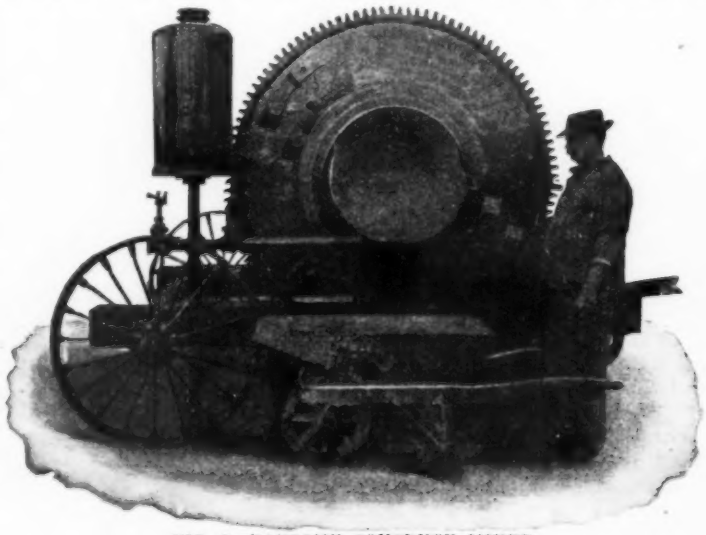


FIG. 3.—RANSOME CONCRETE MIXER.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

It often occurs that the organization of a new company in a town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." The Manufacturers' Record reports the first organization of all companies, and our readers, in seeking to get into communication with them, should be very careful in deciding how to address them, and it is often advisable to add the names of one or more incorporators as an aid to the postmaster in delivering mail.

ALABAMA.

Anniston—Feed and Grist Mill.—Anniston Grocery Co. will build a feed and grist mill of 2000 to 3000 bushels capacity daily.

Birmingham—Grocery.—Incorporated: John F. Enslen Co., capital $5000, by John F. Enslen, J. H. Enslen and Nora Enslen.

Birmingham—Water-works Meters.—Birmingham Water Works Co. will probably install 200 water meters for consumers.

Brewton—Lumber Plant.—Blacksher-Miller Lumber Co. will rebuild at once its burned plant, expending about $20,000; daily capacity will be 1,000,000 feet.

Gadsden—Pipe Works.—J. C. Tolson writes regarding the proposed $25,000 pipe works mentioned last week; $15,000 has been subscribed, and the remaining $10,000 will probably be invested by an experienced man, who is wanted to manage the plant. A daily product of one carload (twenty tons) is proposed.

Gadsden—Foundry and Machine Shops.—Charles Ward, T. L. Johnson and others have bought Christopher Bros.' foundry and machine shops, and will organize a $10,000 stock company to operate same; will manufacture tram and mining cars.

Gadsden—Shovel Works.—Commercial Club has a proposition for the establishment of shovel works to cost $75,000.

Jackson—Salt Lands.—T. G. Bush of Birmingham and associates have leased and will develop salt lands.

Ensley.—H. W. Scott, R. F. Berry, Z. T. Fuqua and others have incorporated Ensley South Highland Co., with capital stock of $10,000, to develop forty-three acres of suburban land.

Florence Cotton Mill.—Ashcraft Cotton Mills will double, adding 3000 spindles and 100 looms; order for machinery placed.

Oxford—Mattress Factory.—T. S. Bagley will establish mattress factory.

Phenix City—Water-works.—J. P. Miller & Co. of Chicago, Ill., have received contract at $22,524 for construction of municipal water-works after plans by Alber & Byrne, engineers, of Birmingham.

Selma—Oil Well.—It is rumored that Joe M. Baker will drill for oil.

Sheffield—Ice and Cold-storage Plant.—Cincinnati (Ohio) capitalists have purchased the Sheffield Brewery, will improve and operate same and add an ice factory and cold-storage plant.

Tuscaloosa—Timber Lands.—Chicago parties represented by John B. Keebles of Chicago have bought 14,000 acres of timber lands near Tuscaloosa, probably for development purposes.

Tuscaloosa—Coal Mines.—George P. Howard and R. E. Watson of Atlanta, Ga., have incorporated Excelsior Coal & Coke Co. to open mines and manufacture coke. Capital stock is $100,000.

ARKANSAS.

Bauxite—Bauxite Mining Plant, etc.—Pittsburg Reduction Co. of Pittsburg, Pa., will erect a large plant for mining, washing and drying bauxite. Work will be commenced next month.

Paragould—Ice Company.—Incorporated: Crystal Ice Co., capital stock $50,000, with P. F. Doerr, president; W. C. Hasty, vice-president, and M. F. Collier, secretary.

FLORIDA.

Cocoanut Grove—Saw-mill.—Potter Bros. & Co. have purchased and removed saw-mill to this town. New machinery will be added.*

Jacksonville—Foundry and Machine Shops. Jacksonville Machine and Iron Works will erect foundry and machine shop separate from the old foundry; two structures will be 60x75 feet and 52x76 feet, respectively. Complete modern equipments will be installed.

Jacksonville—Silk Mill.—Real Estate Commercial Investment Co. of No. 1 Montgomery Building, Jersey City, N. J., announces its intention to build a silk mill at Jacksonville; New York offices at 29 Broadway, Columbia Building; P. L. Alberse, secretary, Geneva Hotel, Jacksonville.

Jacksonville—Drug Factory, etc.—Florida Mutual Drug Co., reported incorporated last week (under Tallahassee), will conduct drug-house and manufacture patent medicines, grocers' drugs, etc.; W. C. Yeiser, treasurer.

Lakeland—Water-works.—The construction of water-works at a cost of $15,000 is being talked of. N. A. Riggins, committee public improvements, can be addressed.*

Plant City—Lumber Mills.—Plant City Lumber Co. has been organized, with capital stock of $25,000, purchased timber tracts near Plant City and will erect mills for cutting lumber. W. D. Mendenhall, Greensboro, N. C., is president; C. F. Finch of Thomasville, N. C., vice-president, and C. J. Cox of Asheboro, N. C., secretary. Address last-named.

Tampa—Road Improvements.—"County Commissioners" have named October 8 as date for voting on an issuance of $400,000 in bonds for road improvements.

GEORGIA.

Augusta—Electric and Gas Lighting.—Committee has reported favorably the petition of Stewart Phinizy and associates to use the streets for a new gas and electric-lighting company.

Bartow County—Graphite Mines.—R. E. Watson, lately mentioned as having closed trade with Chicago parties for graphite property, is of Austell Building, Atlanta.

Camilla—Telephone System.—Camilla Telephone Co., reported incorporated last week, has capital stock of $10,000, and will install system, starting exchange with forty subscribers.

Dalton—Electric Plant and Sewers.—City will vote August 31 on issuing $24,000 in bonds for sewers and $6000 for an electric-light plant. Address "City Clerk."

Harmony Grove—Electric Plant.—It is reported that L. G. Hardman contemplates buying and developing Hurricane Shoals, erecting electric plant to convey the power.

Harmony Grove—Cotton Mill.—It is rumored that a company will organize to build a cotton factory. Possibly L. G. Hardman can inform.

Lifsey—Cannery.—Pope Lifsey contemplates building cannery.*

Lifsey—Cotton Ginnery.—J. W. Slade will erect cotton ginnery of three or four stands.*

Lumpkin—Water-works.—City voted $10,000 for construction of water-works (not $100,000, as stated last week), and H. R. Teal of Richwood is drilling an eight-inch artesian well for the system. Address "The Mayor."

Middleton—Cotton Mill.—C. C. Grogan of Elberton, Ga.; H. H. Smith and Cuyler Smith of Atlanta; J. H. Hicks of Clarksville, Ga., and J. H. Bromley of Philadelphia, Pa., have organized Bannockburn Cotton Mills, with capital stock of $80,000, and will equip plant of 7200 spindles and 250 looms.

Montezuma—Electric Plant.—J. M. Harrison has constructed dam to develop water-power for transmission electrically to electric plants at Montezuma and Oglethorpe, recently bought.

Rome—Clothing and Underwear Factory.—Bass & Heard of Rome, J. H. Taylor and E. D. Bean of Chattanooga, Tenn., have applied for incorporation of the Rome Manufacturing Co., with paid-up capital of $12,000, and privilege of increase to $50,000. Building has been secured, and equipment will be installed for manufacturing trousers, overalls, shirts and heavy underwear.

Rossville—Cement Works.—Chickamauga Cement Co. contemplates substantial additions to its works.*

Valdosta—Vehicle Factory.—Roberts-Cranfird-Dasher Company has let contract for erection of building to be equipped as a carriage and buggy factory.

West Point—Brick Works.—Chattahoochee Valley Clay Works intends to increase its brick capacity daily from 15,000 to 35,000.*

KENTUCKY.

Cloverdale—Brick Works.—Patton Brick Works is adding new machinery and otherwise improving to triple capacity.

Covington—Shoe Factory.—Chinchuba Institute of Chinchuba contemplates removing shoe factory to Covington and there enlarging plant.

Frankfort—Distillery.—George Baker of St. Louis, Mo., and R. A. Baker will build near Frankfort a distillery of 10,000 barrels capacity and organize Millbrook Distilling Co. to operate it.

Franklin—Ice Factory.—It is rumored that T. W. Stringer will erect an ice factory.

Franklin—Lumber Plant.—H. M. Flisher of Indiana has purchased timber lands, and will erect saw-mill for cutting lumber.

Louisville—Distillery.—Daviess County Distilling Co. has been incorporated, with capital stock of $100,000, and R. H. Edelen of Bardstown, president; Geo. G. Brown of Louisville, vice-president, and G. McGowan, secretary.

Louisville—Tobacco Factory.—Monarch Tobacco Works will erect additional factory and warehouse. D. X. Murphy & Bro. have prepared plans.

Louisville—Water-works.—Louisville Water Co. contemplates expending $12,000 to extend its mains.

Louisville—Oil-land Developments.—National Consolidated Oil Co. has been organized, with a capitalization of $5,000,000, to develop 150,000 acres of oil lands in Kentucky, Tennessee, Texas and California. W. O. Bradley of Louisville is president; T. C. H. Vance, also of Louisville, secretary; W. G. Strubbe of Somerset, Ky., field manager; M. C. Alford of Louisville, chairman executive committee, and E. D. Harrington of New York city, treasurer. Address secretary, office in Columbia Building.

Versailles—Lead and Zinc.—It is said that lead and zinc veins have been located by St. Louis and Philadelphia investigators on the lands of W. E. Fincloth, R. D. Ashford and Green Millan.

LOUISIANA.

Abbeville—Electric-light Plant.—Albert G. Nauck of New Iberia, reported lately as having obtained lighting franchise, etc., will erect lighting plant as soon as estimates can be acted upon; will use oil as fuel.*

Loyd—Sugar Mill.—Paul Lisso, C. M. Wells and Mr. Clark have organized Loyd Sugar Co. and are erecting six-roller mill of 3000 tons of cane capacity.

Lecompte—Sugar Refinery.—E. V. Weems is making improvements and enlargements, increasing refinery's capacity from 500 to 775 tons of cane daily.

New Orleans—Grocery, etc.—Incorporated: Schmidt & Ziegler, Ltd., capital stock $300,000, with C. W. Ziegler, president; C. D. Schmidt, vice-president, and E. F. Ziegler, secretary.

New Orleans—Importing, etc.—Chartered: Norman & Freret, Ltd., capital $5000, for importing, exporting, etc., by J. R. Norman, F. W. Freret, Jas. A. Robin, Thos. J. Burke and Fred C. Marx.

New Orleans—Rice Mills.—Chartered: Continental Rice Co., capital stock $100,000, to conduct rice mills, manufacture rice-mill machinery, etc. Charles Carroll is president; Guy W. Mallon, vice-president, and Thos. W. Castleman, director.

Rayne—Oil and Salt Development.—Marsh Island Salt & Oil Co., Limited, has been incorporated, with capital stock of $500,000, to drill for oil, to mine and prepare salt for market, etc. W. W. Duson of Crowley, T. J. Toler, B. M. Lambert, Marian Abbott, H. S. Cocram, James Webb and others are among the incorporators.

Vinton—Sulphur Deposits.—It is reported sulphur deposits have been located on E. J. Roderick's land.

Westlake—Oil Wells, etc.—Eclipse Oil & Sulphur Co. has been organized, with capital stock of $100,000, and W. H. Managan, president; Rudolph Krause, treasurer, both of Westlake; Geo. B. Maegly, secretary, and J. R. Dominick, vice-president, both of Kansas City, Mo. Company has bought and will develop for oil and sulphur lands in Calcasieu parish.

MARYLAND.

Baltimore—Barge Lines.—Baltimore & Boston Barge Co., reported incorporated lately, has elected F. Hamilton Murrell, president, and J. W. Butchart, secretary, to conduct barge lines. Four barges of 2000 tons each have been ordered.

Berlin—Coal Mines.—W. K. Niver & Co. (not Niver Coal Co., as given last week) of Baltimore is the name of company reported as buying coal lands; 15,800 acres have been bought, and two shafts are being sunk, to have daily output of 2000 tons; company will mine with compressed air and haul with either compressed air or electricity; about 1500 men will be employed. The firm has been mining in this field for several years.

Cumberland—Rolling Mill.—Schonthal Iron & Steel Co. will improve its rail mill, installing two new heating furnaces and other machinery and apparatus for increasing capacity.

Cumberland—Light, Heat and Power.—John T. Mason of Hancock and others have applied for incorporation of Cumberland Light, Heat & Power Co.

Frostburg—Water-works.—City contemplates constructing reservoir 100x100 feet. Address "City Clerk."

Hancock—Light, Heat and Power.—John T. Mason and others have asked for incorporation of Hancock Light, Heat & Power Co. and Hancock Water & Traction Co.

Lonaconing—Water-works.—Vandusen D. Hite-Smith has received contract at about $32,000 for construction of the proposed water system for Lonaconing and Midland.

Oxford—Ice, Electric and Water Plant.—It is proposed to build an electric-light plant, water-works and ice factory. L. I. McDougle can give information.*

Pocomoke City—Oil Wells.—Pocomoke City Oil Co. has been organized to drill for oil; E. G. Polk, president; F. H. Dryden, secretary, and Wm. F. King, treasurer.

Pocomoke City—Oil Well.—James S. Clogg, E. J. Schoolfield and Jas. P. Blaine will drill for natural oil.

Rising Sun—Feldspar Quarry.—Charles Williams, Sr., of Baltimore has purchased for about $20,000 the Roberts fedspar quarry, and will develop same.

MISSISSIPPI.

Box—Saw-mill.—Gear & O'Neal have purchased Burnham & Manning Saw-Mill, will add new machinery and generally improve the plant.

Canton.—Chartered: John McGrath Sons Co., capital stock $20,000, by J. W. McGrath of Brookhaven, J. W. Armstrong of Wesson, R. W. Mosby of Canton and others.

Gulfport—Lumber Plants.—It is said that Charles I. James of Baltimore, Md.; Frank Goodyear of Austin, Pa., and Harvey E. Fisk of New York will organize a company to purchase and cut timber lands in Mississippi and Louisiana.

Lyman—Lumber Company.—Lyman Reeves and R. B. Hopkins have incorporated Reeves-Hopkins Lumber Co., with capital stock of $10,000.

Meridian—Water-works.—It is reported that the construction of water-works is to be undertaken. Probably G. M. Weirs can give information.

Pass Christian—Water-works.—City council has passed ordinance authorizing an issu-

ance of $12,000 in bonds for construction of water-works. Address "The Mayor."

Sardis—Water-works.—This city's proposed bond issuance for water-works, recently reported, has been voted, and will amount to $18,000. Messrs. E. C. Howry, J. B. Booth and W. D. Wall comprise committee.

Sardis—Water-works.—The city has voted to construct water-works; probably $15,000 will be expended. Address "The Mayor."

Vicksburg—Mercantile.—D. J. Schlenker & Co., capital stock $20,000, have incorporated for mercantile purposes.

MISSOURI.

Kahoka—Electric and Water Works.—City has adopted plans by Geo. C. Morgan, 808 Royal Insurance Building, Chicago, Ill., for the proposed water-works and electric-light plant, for which $25,000 was voted, as reported last week. Bids will be opened August 25. Geo. W. Henry is city clerk.*

Kansas City—Light and Heat.—International Light & Heat Co., capital stock $50,000, by Alex. Gray, Wm. K. Reeves and Edw. K. Reeves.

Kansas City—Glass-bottle Factory.—Interstate Glass Co. has been organized, with J. J. Heim, president, and Harry Rankin, secretary, and is building a $30,000 glass-bottle factory.

St. Louis—Construction Company.—Buehler-Cooney Construction Co. has been chartered, with capital stock of $20,000, by Jos. J. Cooney, Harry Buehler and Henry Buehler.

St. Louis—Shoe Company.—Meier Swope, Jennie Swope and Herman Hohenthal have incorporated Swope Shoe Co., with capital stock of $50,000.

St. Louis—Oil Wells.—Incorporated: Six Wells Oil Co., capital stock $250,000, by Wm. H. Garland, P. W. Dent, John M. Denny and others.

NORTH CAROLINA.

Asheville — Publishing. — French Broad Press Co. has been incorporated, with capital stock of $50,000, for publishing purposes, by A. H. McQuilkin of Asheville, Henry D. Shepherd of Chicago and others.

Fayetteville—Sewerage System.—Citizens are petitioning for the construction of general sewerage system. Address "The Mayor."

Gastonia—Lumber Mills.—Page Lumber Co. has been incorporated, with capital stock of $20,000, to manufacture sash, doors, blinds, etc., by J. P. Love, D. A. Page and others.

Gastonia—Mercantile.—John F. Love, Jas. F. Thomas and John L. Bryan have incorporated Thompson Company, with capital stock of $25,000.

Hickory — Furniture Factory. — Thos. J. Martin will build furniture factory to cost about $25,000.

Laurinburg—Electric and Water Works.—The construction of water-works and an electric-light plant is talked of. Address "Town Commissioners."

Wadesboro — Water-power Development and Electric Plant.—Fred J. Coxe and associates, reported recently as having secured options on Bluitt's Falls and lands, are about ready to incorporate company to carry out their intentions. About 10,000 horse-power is available and is to be developed for transmission by electricity to Wadesboro and Rockingham for manufacturing and other purposes. As soon as financial plans are completed bids on dam construction and on the necessary water-power and electrical machinery will be wanted.*

Woodlawn—Chair Factory.—North Carolina-Boston Lumber Co. will erect 30x100-foot building and equip it with chair machinery.

SOUTH CAROLINA.

Bennettsville—Hardware Company.—Marlboro Hardware Co. will increase capital from 3000 to $10,000.

Bennettsville—Drug Company.—Chartered: Bennettsville Drug Co., capital stock $5000, with F. R. Crosland, secretary.

Blackville—Machine Shop.—F. M. Pooser & Son have established engine, gin and mill repair shop.*

Bowling Green—Knitting Mill.—The proposed knitting-mill company, lately reported as proposed, will organize, with capital stock of $15,000 and Robert M. Dulin, secretary; will erect mill for underwear, gloves, etc.

Charleston — Mercantile.— Rivers Mercantile Co. has been chartered, with capital stock of $6000, by Henry Tupper and others.

Charleston—Brick Works.—A. F. C. Cramer, Charleston, S. C., intends to establish brick works.*

Elloree — Mercantile.—Chartered: Elloree Farmers' Exchange, capital stock $10,000, by E. F. Frick and others.

Gaffney—Textile-machinery Works.—James W. Brock of Boston, Mass., and Hugo S. Dodenhoff of Gaffney, representing Northern parties, have purchased thirty acres of land as site for erection of textile-machinery and cotton-mill supplies factory. Plans have been made and contract let for two-story building 122x300 feet. About $200,000 will be invested.

Glenn Springs—Cotton Mill.—It is rumored that John K. Garrett will build a cotton mill.

Glenn Springs—Bottling Plant, etc.—John K. Garnet of Glenn Springs and T. D. Darlington of Laurens have purchased the Glenn Springs Hotel and water property. They will develop thoroughly, extending bottling plant, etc.

Greenwood—Lumber and Manufacturing.—Chartered: Greenwood Lumber & Manufacturing Co., capital stock $5000, with S. P. Brooks, president; J. G. Jenkins, vice-president, and S. B. Marshall, J. R. Abney and W. V. Blyth interested.

Laurens—Cotton Mill.—It is proposed to erect a $25,000 cotton-yarn mill. L. A. McCord can give information.*

Newberry—Sewerage System.—City has voted affirmatively on the proposed $25,000 bonds for sewerage system; Otto Klettner, mayor.

Rock Hill—Sewer System.—J. M. Cherry, W. F. Roddey and others are interested in the proposed sewer system referred to last week.

Sumter—Flour Mill.—The erection of a 25-barrel roller process flour mill is contemplated. Sumter Ice Manufacturing Co. can give information.*

Union—Mercantile.—Mutual Dry Goods Co., capital stock $30,000, has been incorporated by A. H. Foster and others.

TENNESSEE.

Bristol — Lumber Company. — Chartered: Stone-Huling Lumber Co., capital stock $50,000, by James A. Stone, Wm. R. Stone, C. H. Huling, H. E. Jones and John W. Price.

Charleston—Lead Mine.—T. T. Wilson, lately mentioned, is of Chattanooga, and states that he has sold a lead mine near Charleston to Nashville parties. Geo. S. Ober of Knoxville made the sale.

Chattanooga—Plow Works.—W. B. Michael and M. T. Freeman have organized Dixie Reversible Disc Plow Co., secured building, and are installing over $2000 worth of machinery for manufacturing plows.

Chattanooga—Glass Works.—Indiana parties will establish window-glass works.

Crossville—Coal Mines.—W. C. Collier and others have bought 3200 acres of coal lands for $12,000, and will open mines.

Crossville — Coal Mines. — Crab Orchard Coal Mining Co. is installing new machinery and otherwise improving its mining facilities.

Crossville—Coal Mine.—Phillipsburg Land Co. will open a coal mine.

Decatur—Telephone Company.—Tennessee River Telephone Co. is increasing capital from $3000 to $10,000.

Dunlap—Milling.—Dunlap Milling Co., capital stock $15,000, has been incorporated by A. L. Mansfield, R. Manzy, J. L. Hudson, W. F. Manzy and C. F. Carpenter.

Gamble—Tannery.—Schlosser Leather Co., now erecting tannery, contemplates increasing capital stock from $50,000 to $100,000.

Johnson City—Iron Furnace.—Cranberry (N. C.) Iron & Coal Co. has purchased Carnegie furnace from Virginia Iron, Coal & & Coke Co., and will put it in blast; output is 150 tons.

Keltonburg—Flour Mill.—J. A. Cates contemplates changing his flour mill to the roller process.

Knoxville—Water-power Dam.—Knoxville Power Co.'s consulting engineer, Col. John Bogart, is about to commence surveys preparatory to selecting site for the proposed dam (probably thirty feet high) to develop water-power on Little river. Capt. C. W. Crozer is local engineer.

McMinnville—Corn and Feed Mill.—J. A. Northcutt, lately reported as building flour mill, will also install corn mill and possibly feed mill; all machinery purchased.

Memphis—Mercantile.—Chartered: American Supply Co., capital stock $6000, by E. D. Ullman, Wm. Cunningham, I. Oppenheimer and others.

Memphis—Oil Tanks.—General Oil Co. will build a number of oil tanks.

Nashville—Oil Wells.—A company capitalized at $5,000,000 has been organized to develop for oil 23,000 acres of land; J. C. Mayfield, president; J. H. Zarecor, secretary, and F. H. Burt, manager.

Nashville—Oil Wells.—W. S. Brooks, W. B. Felts, R. S. West and others will form company to drill for oil.

Nolensville—Lead Mine.—J. M. Proctor, representing Nashville capitalists, has commenced the development of the Gunther lead mine.

TEXAS.

Beaumont—Electric and Ice Plant.—Beaumont Ice, Light & Refrigerating Co. has let contract for 175-ton refrigerating machine and for dynamos of 8000 and 6000 lights to be added to present plant; about $100,000 will be cost.

Beaumont—Oil Wells.—Augusta A. Coleman, Charles Wheelock, Richmond P. Wetmore, Hugh C. Carson and Sterling A. Wood of Birmingham, Ala., have incorporated Birmingham-Beaumont Oil Co., capital stock $300,000, to drill for oil in Texas fields.

Beaumont — Oil Refinery, Asphalt and Paint Works.—Central Asphalt & Refining Co., reported incorporated lately with $2,000,000 capital stock, has organized, with Charles A. Towne of Duluth, Minn., president; Martin Cruse of Chicago, general manager; John P. Withers of Chicago, treasurer; Fred K. W. Short of Chicago, secretary, and Ellis E. Beebe of Beaumont, assistant secretary. Company will erect refinery of 7000 barrels of crude oil capacity daily; also plant for manufacturing 500 tons of asphalt daily, 500 barrels of paints and roofing materials daily and 3900 barrels of illuminating and burning oils daily. Will have offices in New York and Chicago. For the present address assistant secretary at Beaumont.

Bryan—Oil Mill.—Chartered: Bryan Cotton Oil Co., capital stock $50,000, to operate cottonseed-oil mill, by J. W. English, A. D. McConico, E. K. Erwin and others.

Comstock—Mining.—Chartered: Comstock Mining Co., with capital stock of $20,000, for mining purposes, by E. B. Quick, P. Pafford and A. A. Newell.

Dallas—Cracker Factory.—A $10,000 company for establishment of cracker factory is proposed. Commercial Club can inform.

Denton—Cotton Gin.—Planters' Gin Co., reported incorporated last week, has acquired established cotton ginnery. Company contemplates installing fuel-oil plant.

D'Hanis—Oil Wells.—Chartered: Squirrel Creek Oil & Mineral Co., with capital stock of $50,000, by I. C. Worthington, John H. Clegg, R. M. Worthington and J. H. Haile.

Emory — Telephone Company. — Incorporated: Emory Telephone Co., capital stock $1000, by W. D. Peeples, A. H. Rodes, T. R. Potts and others.

Fort Worth—Oil Wells.—Chartered: Globe Oil Co., capital stock $500,000, to prospect for oil, by W. Glen Walker, John Scharbauer, F. G. McPeak and others.

Fort Worth—Viaduct.—L. S. Leversedge has contract for construction of the proposed $67,000 steel viaduct lately mentioned.

Galveston—Oil Wells.—Texas Mutual Oil & Land Co., capital stock $300,000, by M. F. Mott, J. Moller, John D. Hodson and O. H. McMaster.

Galveston—Oil Tanks, etc.—Gulf, Colorado & Santa Fe Railway will soon commence work on proposed two oil tanks of 1,500,000 and 20,000 gallons capacity, respectively; a 1,500,000-gallon tank has just been completed at Somerville; contracts have also been let for eleven oil tanks of 37,000 gallons capacity each, for location at different points on the railway. About $300,000 is being expended for tanks, etc., in connection with the railways adoption of oil as fuel on its locomotives. W. C. Nixon is general superintendent.

Gorman — Mercantile.—Chartered: Townsend, Oldham & Co., capital stock $50,000, by F. W. Townsend, F. C. Oldham, Jr., and others.

Grand Falls—Oil Wells, etc.—Chartered: Grand Falls-Pecos Oil Co., to drill for oil and develop other minerals, by John J. Sweatt, Geo. M. Ottis, T. A. Thompson, Burch Carson and others; capital stock is $200,000.

Henrietta—Oil Wells.—E. C. Noble and others are drilling for oil.

Itasca—Cotton Gin.—Chartered: Osceola Gin Co., capital $1500, by E. E. Griffin, A. N. Griffin and W. H. Terry.

Marshall—Oil Wells, etc.—Chartered: Rosborough Oil & Pipe Line Co., capital stock $50,000, to drill for oil and pipe same to market, by T. H. Young, W. J. Rosborough, Joseph Weisman and others.

Nash—Cotton Gin.—Chartered: Nash Gin Co., capital stock $50,000, to erect cotton gins, by T. O. Cheetham, J. H. Wakeland, J. W. Lumpkin and others.

Paris—Oil-fuel Plant.—W. J. Carter Brick Co. will install plant for burning oil in brick manufacture.

Paris—Chemical Company.—Paris Chemical Co. has chartered, with capital stock of $40,000, by S. B. M. Long, W. F. Gill and W. R. Woods.

San Antonio — Laundry. — Texas Steam Laundry has been chartered, with capital stock of $20,000, by Thos. H. Gray, O. S. Newell and Chas. U. Ogden.

San Antonio—Mining.—Otto Koehler, Otto Wahrmund, N. J. Welsh, H. Kauffman and O. S. Newell have incorporated Jimulco Mining Co., with capital stock of $120,000.

San Antonio—Sand Pits.—Marshall Hicks, E. G. Truehcart, E. O. Muesbach and R. G. Scott have incorporated Loraine Sand Co., with capital of $10,000, to develop sand pits.

Sherman—Ice Plant.—Sherman Ice Co. will add a 75-ton ice machine to plant.

Sinton—Oil Wells.—Hammill Bros. will drill for oil; machinery on the site.

Wooster—Oil Wells.—Chartered: Wooster & Cedar Bayou Oil Co., with capital stock of $90,000, by Alfred Q. Wooster, C. W. Wooster and John L. Wooster.

Wortham — Capital Increased.— Wortham Cotton Oil Co. will increase capital stock from $25,000 to $40,000.

VIRGINIA.

Abingdon—Road Improvements.—Washington county will vote November 4 on issuing $100,000 in bonds for road improvements. Address "County Commissioners."

Blackstone—Water-works.—The construction of water-works is proposed. Possibly "Town Clerk" can give information.

Citypoint—Brick Works.—It is rumored that Mr. Boswell will establish brick works. works.

Hampton—Construction Company.—Chartered: Virginia Contracting & Construction Co., capital stock $50,000, to conduct building operations, etc., by J. E. B. Stuart (president) of Newport News, J. W. Friend, E. W. Burkeholder and others.

Harrisonburg—Evaporating Plant.—Staunton (Va.) Evaporating Co. contemplates building plant at Harrisonburg.

Manchester—Furniture Factory.— Eureka Furniture Co. will increase capital from $10,000 to $25,000 and make extensive improvements and enlargements to factory.

Newport News—Suburban Development.—Newport News & Riverside Development Co. has bought for $35,000 land which will be developed as a residence section. About $10,000 will be expended for street improvements, sewer system, etc.

Newport News—Brass and Iron Foundry.—Peninsula Foundry Co. has purchased site for erection of new brass and iron foundry.

Newport News—Refrigerating Plant.—Business Men's Association has under consideration a plan for forming company for building a refrigerating plant.

Norfolk — Fertilizer Factory. —Imperial Guano Co. is erecting new buildings, installing new machinery and making improvements at a cost of $10,000.

Norfolk—Brick and Tile Works.—Chartered: Nansemond Brick & Tile Co., capital stock $50,000, to manufacture special fancy brick and drain tiling; Wm. H. Collins, president; Wm. E. Ford, vice-president, and A. V. Sturgeon, manager.

Norfolk—Electrical Supplies.—Chartered: Southern Electrical & Supply Co., with capital stock of $100,000, to deal in and manufacture electrical supplies, etc.; H. W. Summers of Philadelphia, Pa., president; H. R. Gay of Baltimore, Md., vice-president, and A. N. Palmer of Norfolk, manager.

Portsmouth—Machine Shop.—R. A. Griefen of Chicago has contract at $97,880 to erect machine shop at Portsmouth navy-yard.

Norfolk—Furniture Factory.—Chesapeake Furniture & Woodworking Co., recently incorporated with $50,000 capital, has purchased twenty-six acres of land as site for plant; will erect 60x200-foot building and equip with 100-horse-power steam plant and machinery for manufacture of furniture, doors, sash, mantels, store fixtures, etc. T. H. Synon is president.

Norfolk—Mercantile, etc.—Colonial Protective & Investment Co. has been chartered, with capital stock of $5000, for mercantile and other purposes; Samuel T. Hill, president.

Richmond—Trunk Factory.—Union Trunk & Bag Co. will increase capital from $5000 to $25,000.

Tampico—Telephone System, etc.—Chartered: Peninsular Telephone Co., with Thos. S. Harris, president; Albert A. Harris, vice-president, and Richard W. Shields (of

Yorktown), secretary; will construct lines in York county.

Tempest—Flour Mill.—Magnolia Mills (not Nagolia, as given last week) has completed the remodeling of its plant; capacity is increased from twenty-five to forty barrels of flour daily.

WEST VIRGINIA.

Berkeley Springs—Light, Heat and Power. John T. Mason of Hancock, Md., and others have asked for incorporation of Berkeley Springs Light, Heat & Power Co.

Cameron—Water-works.—The construction of water-works is talked of. Probably J. G. Crawford or C. G. Fish can give information.

Charleston — Electric-light and Water Works.—Samuel B. Noyes of Wheeling represents parties who have recently acquired the electric-light plant, gas works and water system at Charleston, and who propose expending $200,000 to extend and improve the plants if certain municipal contracts are awarded to them.

Charleston—Laundry.—S. P. Smith, C. S. Peyton, H. B. Peyton and others have incorporated Home Laundry Co., with capital stock of $10,000.

Charles Town—Knitting Mill.—Board of Trade has a proposition from Philadelphia parties for the location of a hosiery mill.

Charles Town—Fruit-evaporating Plant.—Brown & Co. of Wayne county, New York, have leased land at Charles Town from R. P. Chew as site for erection of 36x40-foot building for fruit-evaporating plant.

Glendale—Coal Mining.—Glendale Coal Co. will erect tipples at river side and otherwise provide facilities for water shipments. Contract has been let to E. Keller of McMechen.

Keyser — Furniture Factory.—Richardson Bros. & Co. will erect addition 50x120 feet to factory and install steam-heating plant.

Martinsburg—Light, Heat and Power.—John T. Mason of Hancock, Md., and associates have asked for incorporation of Martinsburg Light, Heat & Power Co.

Montgomery—Brick Works.—B. H. Early is installing machinery for the manufacture of brick.

Morgantown—Glass Bathtub Works.—Morriss Glass Bathtub Co. of Pt. Marion, Pa., is reported as contemplating establishment of works in Morgantown.

Morgantown—Cotton Mill.—Monongahela Textile Co. will install new machinery.

Morgantown—Stone Quarries, etc.—Bennett & Grinnell of Grafton will open stone quarries and develop glass-sand beds near Morgantown; machinery has been ordered.

Parsons—Water-works.—It is said the Parsons Water Co. has let contract at $20,000 for construction of its proposed works.

Salem—Lamp-globe Factory.—Homer W. McKinley and W. W. Jamison are arranging with Pittsburg (Pa.) parties for the establishment of a lamp-globe factory to cost about $25,000.

Shepherdstown — Knitting Mill.—Pennant Knitting Co. of Philadelphia, Pa., has established the mill lately reported.

Welch — Heating and Lighting. — Welch Light, Heat & Equipment Co. has been incorporated, with capital stock of $5,000,000, for manufacturing light, heat and equipments, by W. T. Morgan, Bank of Baltimore Building, Baltimore, Md.; E. J. Bond, John Sherman, W. D. Blanks and W. A. Morgan, also of Baltimore.

BURNED.

Branchville, Texas.—J. H. Gibson & Co.'s cotton gin.

Crowley, La.—James Christian's machine shops; loss $8000.

Petersburg, Va.—Mrs. Mary I. Eames' planing mill; loss $10,000.

Statesville, N. C.—L. Harrill's tobacco factory; loss $1500.

BUILDING NOTES.

Abbeville, Ala.—Bank Building.—First National Bank will erect office building.

Asheville, N. C.—Association Building.—R. S. Smith has completed plans for Y. M. C. A.'s proposed $25,000 building.

Baltimore, Md. — Engine-house. — E. D. Preston, building inspector, is preparing plans for the proposed $15,000 engine-house.

Baltimore, Md.—Apartment-house.—It is contemplated to build an apartment-house, twelve stories, 90x156 feet, to cost $350,000. Probably F. W. and J. H. Trimble can inform.

Baltimore, Md. — Warehouse.— Maryland Distilling Co. will erect addition to warehouse at a cost of $9000. J. C. Gott prepared plans and J. Henry Miller has contract.

Birmingham, Ala. — Market. — Butchers' Association has about let contract to Fies & Son for erection of market, one story, 100x140 feet, concrete floors, ventilating plant, sewerage, etc.; cost will be $10,000.

Birmingham, Ala.—Office Building.—Stone Bros. & Weston of New Orleans, La., are preparing plans for Brown Bros. & Co.'s proposed office building; structure will have plate-glass windows, four passenger elevators, marble front, 261 office rooms, etc.

Birmingham, Ala.—Prison.—A. D. Helich has about completed plans for the proposed city prison.

Boston, Ga. — Bank Building. — Citizens' Bank will erect office building.

Brandenburg, Ky.—Store.—D. S. Richardson will contract for erection of store.

Bristol, Tenn.—Freight Depot.—Virginia & Southwestern Railway has bought site at $10,000 for proposed freight depot and yards. Jas. L. Brass is general manager.

Buena Vista, Md.—Hotel.—Buena Vista Ice Co. contemplates erecting a hotel.

Cameron, W. Va.—W. J. Booher is having plans prepared for a building; site cost $2000.

Cape Charles, Va.—Quarantine Building.—N. H. Virden of Lewes, Del., was the lowest bidder at $4300 for erecting proposed quarantine building.

Centralia, Mo.—City Hall.—Holman & Heflin of Huntsville have contract to erect city hall at $7499.

Charleston, W. Va.—Institute.—Kanawha Brick Co. has contract at $14,528 for erection of West Virginia Colored Institute building.

Charleston, W. Va.—Depot.—Kanawha & Michigan Railway will build depot, plans now being prepared; N. Monsarrat, president, Columbus, Ohio.

Chase City, Va.—Hotel.—Chase City Water Co. has accepted plans for proposed hotel to cost $125,000.

Davis, W. Va.—Clubhouse.—Blackwater Gun Club will erect clubhouse.

De Armanville, Ala.—School.—Efforts are being made to erect a school building. Probably Prof. F. H. Watson can inform.

Decatur, Ala.—Depot.—Southern Railway and Louisville & Nashville Railroad will construct union depot; Frank S. Gannon, manager, Washington, D. C.

Durant, Miss.—Hotel.—Berryhill & Ford of Grenada will build the hotel lately reported; structure will be of frame, 40x92 feet, three stories, thirty-one sleeping-rooms, 20x60 dining hall, hot air or water heat, etc.*

Ellisville, Miss.—Hotel.—Ellisville Hotel Co., lately noted chartered with $5000 capital, will build hotel and lodge rooms.*

Forney, Texas—Store Buildings.—James Riely Gordon Co. of Dallas has prepared plans for six store buildings to cost $31,000.

Fort Worth, Texas—Orphanage.—Benevolent Home will obtain plans and specifications for $20,000 building. Address Rev. I. Z. T. Morris.

Fort Worth, Texas—Temple.—Knights of Pythias will build temple to cost $15,000.

Galveston, Texas—Library.—Rosenberg Library Association, A. J. Walker, president, has invited plans for a modern $100,000 building, the architects being named.

Hazelhurst, Miss. — Courthouse. — James Riely Gordon Co. of Dallas, Texas, prepared plans for the proposed courthouse to cost $50,000, to include plumbing, heating, lighting, marble work, art glass and structural work.

Huntingdon, Tenn.—Business Buildings.—Neill Wright will erect brick business block. J. C. R. McCall will erect two-story brick building. Dr. W. M. Wright will rebuild brick block recently burned; to have iron and plate-glass front, etc.

Hutton, W. Va.—Building.—J. Ernest McClung of Covington, Va., has contract to erect $12,000 building, with elevator, tarred-gravel roof, etc.*

Jacksonville, Fla. — Business College. — Prof. R. W. Massey of Columbus, Ga., will erect a three-story building for business college to cost $25,000. Contract awarded to Mann & McCottery.

Jennings, La.—Bank Building.—Proposals will be opened September 25 for erection of Citizens' Bank building, after plans on file with bank or with W. L. Stevens, architect, Crowley.

Jonesville, S. C.—Bank Building.—Bank of Jonesville will erect office building 30x40 feet.

Kaufman, Texas—Dwelling.—James Riely Gordon Co. of Dallas has prepared plans for residence for Dr. H. W. Hoffer to cost $3000.

Lakeland, Fla.—School.—City has voted $10,000 for the erection of school building. Address N. A. Riggins, committee public improvements.

Lifsey, Ga.—Hotel.—J. M. Head & Son will erect 30-room addition to hotel and install electric-light plant.*

Longview, Texas—Church.—James Riely Gordon Co. of Dallas has prepared plans for brick church to cost $12,000. For information address G. A. Kelly, president.

Louisville, Ky.—Warehouse.—D. X. Murphy & Co. have made plans for warehouse for Monarch Tobacco Works.

Lynchburg, Va.—Hospital.—Plans are being prepared for the hospital to be erected by Thos. F. Ryan of New York city.

Monteagle, Tenn.—Hotel.—C. A. Asmus of Nashville will prepare plans for addition to Assembly Inn.

Montgomery, W. Va.—Hotel.—A hotel will be built. Possibly B. H. Early can state who is interested.

Morganton, N. C.—Bank Building.—W. H. Sloan has contract to erect proposed First National Bank building.

Morgantown, Va.—Publishing House.—Acme Publishing Co. will erect three-story and basement house, with 2000-pound power elevator.*

Nashville, Ga.—Jail.—Bids will be opened October 15 for construction of jail, two-story, brick, fireproof, after plans on file with "Clerk of Superior Court."

Newport News, Va.—Hospital.—Newport News Hospital Association will advertise for bids on the erection of a portion of its building. P. Thornton Marye has prepared plans.

North Augusta, S. C.—School.—Town will build a $2500 school. Address Jas. U. Jackson, president, Augusta, Ga.

Orange, Texas—Depot.—Southern Pacific Railroad has plans and specifications on file for the proposed depot and platforms. Contracts will be placed soon. L. Mims is division engineer at Houston. New York office is at 35 Wall street.

Paris, Texas — Residence. — James Riely Gordon Co. of Dallas has prepared plans for residence for Mrs. Williams to cost $5500.

Richmond, Va.—Car Barn, etc.—Richmond Traction Co. has let contracts for erection of 70x85-foot car barn, 85x173-foot repair shop and 80x85-foot paint shop, all structural steel and iron work; cost, about $45,000.

Rising Sun, Md. — Warehouse. — Charles Williams, Sr., of Baltimore will build feldspar warehouse.

San Antonio, Texas—Residence.—James Riely Gordon Co. and Harvey L. Page, associate, has prepared plans for residence for Le Roy G. Denman, frame, colonial, hardwood, art glass, plumbing, heating, etc., to cost $30,000.

San Antonio, Texas — Church. — James Riely Gordon Co. of Dallas and Harvey L. Page, associate, have prepared plans and specifications for proposed Travis Park M. E. Church building, stone, steam heating, art glass, marble, etc., to cost $35,000.

San Antonio, Texas—Depot.—International & Great Northern Railway will build a $170,000 depot; Leroy Trice, general manager, Palestine.

Shreveport, La.—Jail and Schools.—City has voted affirmatively on proposed issuance of $60,000 bonds for erecting jail; also voted special tax for erecting school buildings. Address "The Mayor."

Shreveport, La.—Hotel and Office Buildings.—James Riely Gordon Co. of Dallas, Texas, and A. J. Armstrong of Shreveport have prepared plans for the City Hotel building, four stories, elevators, electric lights, marble, plate glass, hard plaster, kitchen outfits, etc., to cost $30,000; also plans for Soady office building, press brick and stone, electric lights, plumbing, steam heating, skylights, etc., to cost $24,000, and have awarded contract for superstructure of First National Bank building to Sonnenfield & Emmins, contractors, at $108,000, exclusive of fixtures, elevators, fittings, etc.

St. Louis, Mo.—Exposition Buildings.—The executive committee of the proposed exhibition for 1903 expects to let contracts for over $7,000,000 worth of buildings this fall. Address D. R. Francis, chairman of committee, 111 Fifth avenue.

St. Louis, Mo.—Store Building.—Lindell Real Estate Co. will erect store building to cost $400,000, ten stories, 250-foot frontage; plans have been prepared.

Tyler, Texas — Depot. — International & Great Northern Railway has accepted plans for proposed $10,000 depot. A. J. Mood is architect for company.

Washington, D. C.— Residences.— C. L. Harding has prepared plans for eleven two-story residences.

Wilmington, N. C.—Hotel.—It is rumored that Henry M. Flagler of New York city will build a hotel at Wrightsville Beach.

Winchester, Ky.—Residence.—Rev. J. L. Weber will build residence.

Woodlawn, N. C.—Hotel.—North Carolina-Boston Lumber Co. will build a 16-room hotel.

RAILROAD CONSTRUCTION.

Railways.

Acme, Texas.—Messrs. Johnson Bros. & Faught, railroad contractors, have become interested in the plan to build a line from Acme to Oklahoma City, in the Territory of this name, an estimated distance of 203 miles. They have recently completed an extension of the St. Louis & San Francisco system from Sapulpa, I. T., to Denison, Texas. They may be addressed at Sapulpa. Their permanent office is at St. Elmo, Ill.

Ashburn, Ga.—The Flint River & Gulf Railroad Co. has been organized to construct a line from Ashburn to Bainbridge, an estimated distance of ninety miles. Among those interested are J. C. Turner and W. N. Spence of Camilla, Ga.

Baltimore, Md.—The Liberty Turnpike Electric Railroad Co. has been formed to build from the northwestern suburb of Baltimore to Harrisonville, a distance of twelve miles. It is understood that the line will be a branch of the United Railways & Electric Co.'s system. Frank H. Calloway and James E. Ingram of Baltimore are among those interested.

Belair, Md.—It is announced that work on the proposed electric road between Belair and Havre de Grace is to begin in the near future. The line will be about sixteen miles long. A company has been formed with John H. Reckord of Belair, president, and W. B. Harlan, secretary.

Beaumont, Texas.—A correspondent of the Manufacturers' Record writes that the Beaumont & Port Arthur Suburban Railroad has no connection with the company in which C. F. Price of Lima, Ohio, is interested. The first-named company has been incorporated to build an electric line twenty-three miles long.

Belton, Texas.—O. L. Braily and others are interested in the plan to build an electric road between Belton and Temple, a distance of eight miles.

Brenham, Texas.—The Gulf, Colorado & Santa Fe Railroad may be extended from Clay, Texas, to what is known as the Stone plantation, a distance of eight miles. Heber Stone at Brenham is interested in the project.

Bristol, Tenn.—It is announced that the Virginia & Southwestern Railroad Co. has recently purchased property in Bristol, where it will construct additional freight-yards. F. R. Barrett at Bristol is engineer.

Cadiz, Ky.—About four miles of grading have been completed on the railroad to be constructed between Cadiz and Gracey, a distance of ten miles. Among those interested is W. C. White of Cadiz.

Cape Girardeau, Mo.—It is stated that the St. Louis, Kennett & Southern Company will build a branch in Missouri about sixteen miles long, to be known as the Clarkson Railroad. L. B. Houck at Cape Girardeau may be addressed.

Carrollton, Ala.—The latest report of the Carrollton Shortline Railroad is to the effect that a branch will be probably built to Gainesville in the near future. John T. Cochrane is the president.

Corbin, Ky.—The company promoting the railroad between Corbin and Burnside has elected Samuel Woodward of Cincinnati, Ohio, president; L. F. Hubbel of Lancaster, Ky., vice-president, and J. M. Logan, also of Lancaster, secretary. Preliminary surveys of the route have already been completed.

Cumberland, Md.—About five miles of the electric road between Cumberland and Frostburg, Md., have been completed. It is expected to connect the two towns by December 1. The Penn State Construction Co. of Philadelphia is contractor. J. W. Burchinal of Moundsville, W. Va., is president of the railroad company.

Dalton, Ga.—M. S. Squires of Binghamton, New York, has been elected president of the Dalton & Alaculsy Railroad Co., which is building a road between the towns mentioned. About seven miles of grading has been completed.

Danville, Va.—It is expected to complete the work of changing the Danville & Western road from narrow to standard gauge between Danville and Martinville by October 1. The line from Danville to Stuart will

be completed by April 1. J. A. White at Danville is superintendent.

Denison, Texas.—It is officially stated that the Missouri, Kansas & Texas Railroad Co. will expend about $400,000 in improvements to its line between Hillsboro and Denison. A. A. Allen at Dallas is vice-president of the company.

Denison, Texas.—Rails are being received for the Denison, Bonham & New Orleans Railroad, and tracklaying is now in progress. It is expected to have a portion of the line ready for train service by October 1. George A. Jarvis at Denison is engineer of the company.

Ensley, Ala.—J. W. Minor of Ensley has been elected president of the Steel City Railway Co., organized to construct an electric line between Ensley and Pratt City. The company is capitalized at $500,000, and it is reported includes several capitalists from New York and Detroit, Mich.

Frankfort, Ky.—George B. Harper has been elected president of the Frankfort & Cincinnati Railroad, and it is reported that the line will be extended beyond its present terminal points. It is in operation between Frankfort and Georgetown, forty miles.

Gilmer, Texas.—The Texas Southern Railroad Co. has begun surveys for its proposed extension to a connection with the railroad recently purchased from the Ragley Lumber Co. The extension is to be constructed as soon as possible. L. E. Walker at Marshall, Texas, is one of the owners of the road.

Goldsboro, N. C.—A report is current that a company may be formed in the near future to promote a railroad between Goldsboro and Swansboro.

Harlow, Ark.—The Harlow & Northern Railroad Co. has been formed to build from Harlow into Calhoun and Dallas counties. Among the promoters are G. D. and E. M. Hope of Harlow.

Jackson, Miss.—A company called the Vinegar Bend Lumber Co., it is reported, is building a railroad through a portion of the pine district, which will be a feeder of the Mobile, Jackson & Kansas City road.

Joplin, Mo.—F. W. Fratt, chief engineer of the Missouri, Kansas & Northwestern Railroad Co., informs the Manufacturers' Record that surveys have been completed and a contract for grading let to the Grigsby Construction Co. of Kansas City, Mo. The line will be about thirty miles in length, extending between Joplin and Mineral, Kans. When completed it will be operated as a branch of the Missouri, Kansas & Texas system. The Grigsby Company will sublet some of the work, and may be addressed at Columbus, Kans.

Laurel, Md.—It is reported that the Washington Traction Co. has under consideration an extension of its electric line from Berwyn to Laurel, and that contracts may be let in a few months. George H. Harries is president.

Mansfield, Ark.—A report is current that the St. Louis & San Francisco Railroad Co. has decided to build an extension to Hot Springs within the next year. B. F. Yoakum is general manager of the company.

Monticello, Ky.—Jerry Risps has been appointed engineer of the railroad proposed between Monticello and Somerset. The promoting company is entitled the Cumberland River & Nashville Railroad Co. R. W. Mullen of the Cincinnati Trust Co. is interested in the project; also J. C. Slayback of Hamilton, Ohio.

Mt. Pleasant, Tenn.—It is reported that plans are being promoted for another railroad through the Tennessee phosphate fields, which will extend from Mt. Pleasant to Huntsville, Ala.

Norfolk, Va.—It is officially announced that work is to begin on the Chesapeake Transit Co.'s line at once. It will be twenty miles in length, extending from Norfolk to Cape Henry. I. A. Walker & Son of Philadelphia are the general contractors.

Orange, Texas.—The Orange & Northwestern Railroad is completing its line between Orange and Buna, and it is announced has secured the necessary materials for laying the track. A quantity of rolling stock has also been purchased. J. W. Maxcy at Houston, Texas, is engineer.

Selmer, Tenn.—The Selmer & Tennessee River Valley Railroad Co. has elected R. H. Matthews as one of its directors, and it is reported that a plan to build this line in the near future has been decided upon. The proposed route is from Selmer to Waynesboro, Tenn.

Talladega, Ala.—T. G. Baylor, engineer of the Eastern Railway of Alabama, writes the Manufacturers' Record that the work upon the road will probably begin within the next thirty days. The section between Talladega and Pyriton, a distance of twenty-five miles, will be built first. Bids have been received from contractors.

Tiptonville, Tenn.—The project of building a railroad between Tiptonville and Fulton, Ky., has been taken up by J. C. Harris, and it is understood that rights of way are now being secured.

Tuscaloosa, Ala.—It is announced that the Southern Railway Co. is making surveys for a road which will reach the coal and ore deposits in Tuscaloosa county. The road, if built, will form a connection between Tuscaloosa, Brookwood and Searles, Ala. W. H. Wells at Washington is the engineer.

Vicksburg, Miss.—Estimates and surveys have been completed on the portion of the Birmingham & Vicksburg road to be built in Mississippi, and it is expected to complete surveys of the entire line by November 1. The distance is estimated at 263 miles. B. L. Roberts of Canton, Miss., and J. C. Searles of Vicksburg are reported as interested.

Walhalla, S. C.—The latest report concerning the Blue Ridge Railroad is to the effect that the present owners have decided to extend it a distance of seventeen miles in the near future. Fairfax Harrison of Washington, D. C., is one of the owners.

Water Valley, Miss.—H. P. Farrar, chief engineer of the Alabama, Mississippi & Gulf Railroad Co., informs the Manufacturers' Record that the route proposed is from Friar's Point, on the Mississippi river, to Water Valley. Preliminary surveys have been made. Mr. Farrar's address is at Jackson, Miss.

Webb City, Mo.—It is stated that the Missouri Pacific Railroad Co. is making surveys for a railroad branch to Granby, Mo., and Cushman, Ark. The estimated length of road is 150 miles. Russell Harding at St. Louis is vice-president.

Wheeling, W. Va.—What is known as the Everett-Moore Syndicate, it is reported, is considering the construction of an electric system that will extend from St. Clairsville, Ohio, to Wheeling. It is stated that the company is negotiating to secure the lines of the Wheeling Traction Co. The principal office of the syndicate is at Cleveland.

Street Railways.

El Paso, Texas.—Work has commenced upon the electric railroad which is to be built by the syndicate in which E. W. Davis is interested.

Natchez, Miss.—The Safety Electric Co. of New Orleans has secured a contract to prepare estimate for building the proposed street railway in Natchez, in which E. H. Ratcliff is interested.

Tampa, Fla.—The electric railroad company headed by John P. Martin has secured a franchise to build its car line in the city and suburbs, and it is stated that it will be completed within the next eighteen months.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Baling Presses.—G. S. Sexton, Wytheville, Va., wants addresses of hay balers.

Barrel Machinery.—See "Woodworking Machinery."

Belting.—See "Transmission Equipment."

Boiler.—C. E. Smith, Postmaster-General, Washington, D. C., will open bids September 10 for furnishing 80-horse-power tubular boiler. Specifications, etc., furnished by Second Assistant Postmaster-General.

Boilers.—Geo. S. Parkes & Co., 7 Noel Block, Nashville, Tenn., are in the market for two horizontal tubular boilers 18 feet long, 72 inches diameter, 74 four-inch tubes, fixtures and stacks, built after standards of Hartford inspection.

Boiler and Engine.—J. W. Miner, Ronda, N. C., wants prices on 15 to 20-horse-power combined engine and boiler, mounted on skids; second-hand.

Boiler and Engine.—B. Frank Wine, Roanoke, Va., wants addresses of makers of 20-horse-power engine and boiler.

Boiler and Engine.—Chattahoochee Valley Clay Works, West Point, Ga., will buy 35-horse-power engine and 40-horse-power boiler.

Brick Machinery.—W. W. King & Sons, Lifsey, Ga., want to correspond with makers of clay-working machinery.

Brick Machinery.—A. F. C. Cramer, Charleston, S. C., wants information and estimates on brick-plant equipment.

Building Supplies.—Ellisville (Miss.) Hotel Co. solicits bids on roofing, iron columns and fixtures.

Cannery.—Pope Lifsey, Lifsey, Ga., wants prices on cannery equipment.

Canning.—R. B. Loggins, Columbia, Texas, wants information as to preserving syrup in barrels, cans, etc., and prices on the required supplies.

Cotton Ginnery.—J. W. Slade, Lifsey, Ga., wants price on three or four-gin outfit, with boiler and engine.

Cotton Machinery.—Sidney Cotton Mills, Graham, N. C., want to buy forty-two second-hand Bridesburg or Wood looms, 35-inch, four-box, two treadles, good condition, etc.

Cotton Mill.—L. A. McCord, Laurens, S. C., wants machinery for $25,000 cotton-yarn mill; wants dyeing, mercerizing and coning (winding) machinery included.

Courthouse Vaults.—J. A. Dowtin, town clerk, Warrenton, N. C., will open bids September 2 for installation of fireproof vaults in courthouse and three steel cells in jail.

Dam Construction.—W. A. Carlisle, engineer Gainesville & Dahlonega Electric Railway, Gainesville, Ga., wants information relative to steel dams.

Electrical Plant.—Fred J. Coxe, Wadesboro, N. C., is prepared to correspond with makers of water and electrical power machinery preparatory to an early letting of contracts.

Electric-light Plant.—J. M. Head & Son, Lifsey, Ga., want plant for lighting hotel, with gasoline engine.

Electric-light Plant.—Albert G. Nauck, New Iberia, La., wants estimates on new and second-hand plant as follows: Eighty-horse-power engine, 25-horse-power engine, 100-horse-power engine, high speed, automatic, belt and direct-connected, the 100 horse-power with two flywheels; also on 125-horse-power, 150-horse-power and two 75-horse-power boilers, return tubular; also on pumps, inspirators, gauges, lubricators, heaters, oil burners, oil tanks, smokestacks, etc.

Electric-light Plant.—See "Ice Plant, etc."

Electric-light Plant.—See "Water-works."

Electric Machinery.—High Point (N. C.) Upholstering Co. wants to buy 220-volt motor of five to seven horse-power, second-hand.

Electric Motor.—Main Furniture Co., Hagerstown, Md., wants electric motor, A. C., two phase, new or second-hand.

Elevator.—Acme Publishing Co., Morgantown, Va., wants to buy power elevator of 2000 pounds capacity.

Engine.—See "Electric-light Plant."

Engine Supplies.—F. M. Pooser & Son, Blackville, S. C., want prices on engine supplies.

Flour Mill.—Sumter (S. C.) Ice Manufacturing Co. is in market for roller mill of twenty-five barrels capacity.

Flour Mill.—J. H. Starr, Lifsey, Ga., wants prices on 40 to 50-barrel flour mill, with gristmill attachment, also boiler and engine.

Furniture.—W. H. Sanborn, Buena Vista, Va., wants addresses of settee makers.

Furniture.—Royal Hotel Co., Ltd., Sidney Story, vice-president, No. 44 Equitable Building, New Orleans, La., will want to contract for furniture and other equipment for large hotel.

Hay Balers.—See "Baling Presses."

Hotel Equipment.—See "Furniture."

Hotel Fixtures.—See "Building Supplies."

Ice Plant, etc.—L. I. McDougle, Oxford, Md., wants information and prices on electric-light plant, water-works and ice plant.

Jail Work.—See "Courthouse Vaults."

Laundry.—B. Frank Wine, Roanoke, Va., wants addresses of makers of steam-laundry machinery.

Lounges.—See "Furniture."

Lumber or Logging Engine.—See "Railway Equipment."

Machine-shop Supplies.—F. M. Pooser & Son, Blackville, S. C., want prices on brass goods, pipe and fittings.

Machine Tools.—Salem (N. C.) Iron Works wants an engine lathe, 26 to 28-inch swing, 10 to 12-foot bed, with modern improvements; full details, prices, etc., requested.

Mercerizing Equipment.—See "Cotton Mill."

Mining Cars.—See "Railway Equipment."

Office Specialties.—A. Popkess, 41½ Peachtree street, Atlanta, Ga., wants addresses of makers of letter-copying presses.

Oil-fuel Plant.—See "Electric-light Plant."

Overall Machinery.—See "Sewing Machines."

Paper Files.—Cotton Trade Journal, Box 185, Savannah, Ga., wants file covers for paper 9x12 inches.

Piping.—Isola Oil & Coal Co., Beech Grove, Ky., wants estimates on about two miles of pipe line.

Presses.—See "Winery Equipment."

Pulleys.—See "Transmission Equipment."

Railway Equipment.—Alabama Consolidated Coal & Iron Co., Birmingham, Ala., wants several drop bottom dump ore cars of capacity for twenty tons and upwards.

Railway Equipment.—P. H. Starr, Olar, S. C., wants to buy tram engine (geared preferred) for wood road in logging operations.

Railway Equipment.—Morgan Brown, Lifsey, Ga., wants to correspond relative to cost of three-and-one-half-mile dummy line, with engine and two cars.

Roofing.—See "Building Supplies."

Roofing.—Chickamauga Cement Co., Rossville, Ga., wants prices on roofing materials.

Roofing.—J. Ernest McClung, Covington, Va., wants to let contract for tarred-gravel roof.

Transmission Equipment.—C. W. Rush, New Smyrna, Fla., wants prices on rubber and leather belting, two to eight inches, on shafting one and one-half to two inches, set collars one and one-half to two inches, boxing four to six inches, pulleys 12-inch face, 12-inch diameter, and planer knives from sixteen to twenty-four inches.

Sewing Machines.—Chas. E. Clapp, Hagerstown, Md., wants addresses of makers of machinery for overall factory.

Spark Arresters.—Seward Trunk & Bag Co., Petersburg, Va., wants information and prices on spark arresters.

Vaults.—See "Courthouse Vaults."

Water-power Machinery.—See "Electrical Plant."

Water-works.—See "Ice Plant, etc."

Water-works.—C. B. Sherwood, mayor, and council of Kahoka, Mo., will open bids August 25 for furnishing material and constructing water-works and electric-light plant after plans, etc., by Geo. C. Morgan, 808 Royal Insurance Building, Chicago, Ill. Amount available is $25,000.

Water-works.—N. A. Riggins, committee public improvements, Lakeland, Fla., is prepared to receive information regarding water-works; $15,000 may possibly be available for plant.

Well-drilling Equipment.—Isola Oil & Coal Co., Beech Grove, Ky., wants estimates on equipment for well-drilling or on contracts for drilling wells.

Winery Equipment.—L. E. Key, Cuthbert, Ga., wants addresses of makers of equipment for winery (grape crushers, wine presses, etc.)

Woodworking Machinery.—Leonard Vyne, North Wilkesboro, N. C., wants second-hand four-sided molder, four to six inches.

Woodworking Machinery.—Melville Furniture Co., Mebane, N. C., wants dado machine.

Woodworking Machinery.—W. H. Chapman, Lifsey, Ga., wants to buy woodworking machinery.

Woodworking Machinery.—L. I. McDougle, Oxford, Md., wants information and prices on machinery for making slat barrels.

Woodworking Machinery.—Potter Bros. & Co., Cocoanut Grove, Fla., want prices on self-feed gang ripping saw for widths up to twenty-six inches, three inches thick; want diameter saw, 18-inch inserted tooth.

Woodworking Machinery.—See "Nail Machinery."

Woodworking Machinery.—See "Transmission Equipment."

Woodworking Machinery.—J. W. Miner, Ronda, N. C., wants prices on 20-inch planer, second-hand.

Woodworking Machinery.—W. F. Murphy, Norris, Mont., wants addresses of makers of machinery for manufacturing insulator pins, brackets, etc.

Opportunity to Millmen.—An excellent opportunity to engage in lumbering and flour milling is offered in another column. The property which includes these industries, also a wagon shop and a general store, may be purchased at a bargain. W. A. Johnson at McMinnville, Tenn., may be addressed.

TRADE NOTES.

Branching Out.—Mr. M. W. McRae, mill architect and engineer of Atlanta, Ga., has opened a branch office at 1229 Broad street, Columbus, Ga.

Timber Land for Sale.—In another column will be found the advertisement of a tract of timber land in Cuba offered for sale. Those interested may address Box 316, Suffolk, Va.

All the Way from Denmark.—The Burt Manufacturing Co. of Akron, Ohio, has recently made a large shipment of Cross Oil Filters and Burt Exhaust Heads to Copenhagen, Denmark.

In a New Office.—Messrs. W. F. Jacoby & Co., the well-known coal and coke operators of Philadelphia, announce that their Baltimore office has been removed to 1316 Continental Trust Building.

An Important Contract.—The Exeter Machine Works has been awarded the contract for heating Dunbar Hall for the Phillips Exeter Academy at Exeter, N. H. It will install a 20-section Exeter boiler.

Important to Furnacemen.—The Carolina Mineral Co. is now prepared to furnish barytes and talc, also ground soapstone and talc for various purposes. It may be addressed at 140 Maiden Lane, New York.

A Large Order.—Recent orders secured by the Ball Engine Co. of Erie, Pa., are for an engine for the Yorkville Ice Co. of New York and the National Carbon Co. of Cleveland, Ohio. The last order is for 350 horse-power.

In a New Position.—W. H. Vance, who has been for some years with the Sterling Emery Wheel Manufacturing Co., Tiffin, Ohio, has been appointed superintendent of the works of the Star Corundum Wheel Co., Detroit, Mich.

Working Overtime.—The W. J. Clark Co. of Salem, Ohio, has so many orders for the Lane patent joist hangers and other plate metal work that its factory is working overtime, and will probably continue to do so for an indefinite period.

To Millers.—An opportunity is offered to secure flour-mill machinery in good condition at a very low cost. A description of the apparatus will be found in another column. Thomas W. Smith at Washington, D. C., may be addressed.

Opportunity to Agriculturists.—Mr. James P. Menager of Point Pleasant, W. Va., will be pleased to correspond relative to farming property offered for sale in Mason county of that State. Further particulars are given in the advertising columns.

Orders from the South.—The Peck-Hammond Co., Cincinnati, Ohio, were recently awarded the contract and is now placing its mechanical heating apparatus and sanitary flushing closets in a new high-school building being erected at Rocky Mount, N. C.

Required More Room.—The Incandescent Electric Light Manipulator Co. of Boston has been compelled to secure more factory space on account of the demand for the Morse Lamp Adjuster. The factory is now located at Quincy, Mass., and the company has facilities for turning out 1000 adjusters daily.

All Points of the Compass.—Judging by the recent orders received for feed-water heaters by the Stilwell-Bierce & Smith-Vaile Company of Dayton, Ohio, this company enjoys a trade which reaches all points of the compass. In one week it shipped the specialties referred to to points in Ohio, Mississippi, Illinois, Texas, Indiana, Louisiana and Iowa.

Conveying Bark by Air.—The Parsons Pulp & Paper Co. of Parsons, W. Va., writes the Sterling Blower & Pipe Manufacturing Co. of Hartford, Conn., that the system at the Parsons plant to transfer the bark from the wood-room to the boiler-house is giving good satisfaction. The company considers this method of handling the bark superior to the conveying system.

Saving the Barge.—The tug Vosberg, operating on the Pacific coast, recently saved a barge from being wrecked upon a bar at the entrance to one of the Pacific coast harbors. The tug was equipped with one of the towing machines manufactured by the American Ship Windlass Co. of Providence, R. I. By the use of this machine the power of the tug was greatly increased.

To Supply Fuel Oil.—The J. M. Guffey Petroleum Co. of Port Arthur, Texas, is now in position to attend to orders for oil to be shipped by rail or water. It has special facilities for shipping promptly, and can deliver the quantity by tank car, barge or tank steamship, as desired. Mr. Edgar M. Moore, general sales agent, will be pleased to give additional information to anyone corresponding with him.

In Good Demand.—That Southern people appreciate a good thing is indicated by the trade which the Fernholtz Brick Machinery Co. of St. Louis is enjoying in the South. It has recently installed a plant of 40,000 capacity at Ferris, Texas, also additional equipment for the Beaumont Brick Co. It is a notable fact that the customers of the Fernholtz Company are universally pleased with the machinery which it manufactures.

Anti-Rust Paint.—Keith, Simmons & Co. of Nashville, Tenn., have been made State agents for Zanzibar Anti-Rust Paints manufactured by the Garfield Paint Co., Cleveland, Ohio. They report a constant demand for the goods. The company is now making Zanzibar Anti-Rust Paint in all colors. For structural iron work, roofs, bridges and wherever a preservative and durable paint is wanted, Zanzibar Paints are superior.

Contracts Secured.—Two contracts recently secured by the Kinnear Manufacturing Co. of Columbus, Ohio, are for rolling steel doors for a warehouse at Baltimore, also three of the Kinnear metal rolling partitions for the warehouse of the Union Trust & Storage Co. at Washington. The contracts were obtained by J. F. Siegel, district manager for the Kinnear Company. Mr. Siegel's offices are in the Mutual Life Building, Philadelphia.

An Important Sale.—Announcement is made of the sale of the Prospect Worsted Mills and the Globe Worsted Mills, also other property in connection with the Globe Mills at Worcester, Mass. The plants were sold through Messrs. J. E. Conant & Co. of Lowell, Mass., auctioneers, and the prices received were considered very satisfactory. The trustees congratulated the auctioneers on the manner in which the properties were advertised and presented to the bidders.

Growing in Favor.—The cotton manufacturers of the country, and especially the South, are favoring more and more transmission rope. Drives of this kind once installed in a mill appear to be preferred to any other kind. The transmission rope made by the American Manufacturing Co., 63-65 Wall street, New York, is composed of the best Manila hemp, and is noted for its durability. That company is also selling large quantities of jute rope to Southern mills for baling textile fabrics.

Valuable Improvements.—The Rubber Tire Company of Philadelphia announces that it has made several very important improvements in connection with its well-known specialties. Its cycle tire has been considerably lightened, so that it weighs but little more than the ordinary pneumatic tire. A higher grade of stock has also been placed in the work. Through its increased facilities for manufacture the company is now in a position to offer its tires for vehicles at a considerable reduction from former prices.

Orders From Far Away.—The McLanahan-Stone Machine Co. of Hollidaysburg, Pa., has shipped to the Christmas Island Phosphate Co., Christmas Island, Indian ocean, via Singapore, machinery for a phosphate-washing and drying plant, consisting of two double log washers, screens, conveyors, crushers, elevators, dryers and engines. The company is also building a phosphate-washing plant for the Central Phosphate Co. of Florida, and a double steel log ore washing plant for the Buffalo Iron Co. of Maunie, Tenn.

Patents for Sale.—L. J. Lawrence at Murfreesboro, N. C., will be glad to give information relative to a patent corkscrew, a combination lock and a locking stopcock which he has for sale. The corkscrew will extract corks from any kind of a bottle without exertion. The combination lock can be utilized for a variety of purposes, while the stopcock is especially valuable for air-brake systems on railroads. Plans and specifications will be sent on request. Further details will be found in the advertising columns.

Strong Endorsement.—The pulverizers and agitating screens manufactured by A. J. Sackett of Baltimore have called forth strong endorsements from patrons. In one letter to the manufacturer the Miller Fertilizer Co. of Baltimore writes that it is well pleased with the apparatus installed in its factory. A test made of a pulverizer and two screens used by the Miller Company shows that they have a capacity for at least 300 tons daily. The Sackett pulverizer is especially adapted for working up tailings from two screens on acid phosphates.

Deservedly Popular.—The Sprague Electric Co., 527-531 West Thirty-fourth street, has been obliged to run the New York factory at night for some time to meet the demand for its flexible conduits for interior wiring. The new flexible products are very popular, and will continue the reputation for superiority that the Sprague Company's conduits always have enjoyed. The superior qualities of the Greenfield flexible steel-armored conductors and cords are simplicity of installation, thorough protection of wire and insulation from mechanical and other injury, and high-grade insulation at low cost.

A Movable Storage Battery Station.—The Brooklyn Rapid Transit Co. has a movable storage battery substation, which it finds very valuable for furnishing power to its system. The "storage" consists of several old cars, which have been equipped with storage batteries. The cars can be moved to any point desired. One of the cars is equipped with a switchboard and battery regulator by which one attendant can manipulate it. The Chloride Accumulator System is used, giving the most satisfactory results. Anyone desiring additional information may address the Electric Storage Battery Co., Philadelphia.

Ventilation for Industries.—The necessity for adequate ventilation in power-houses and factories, especially in the South, is evidently appreciated, as is evidenced by the extensive trade of the Pancoast International Ventilator Co. of Philadelphia in this section of the country. The company has recently completed a number of large ventilators especially adapted for power-houses and cotton mills in the South, and its plant has been working on full time in filling orders for the foreign as well as domestic market. The company has a very wide reputation for its goods, and can be said to be doing business on its merits.

Orders Tell the Story.—The many orders recently secured by Messrs. Hyde Bros. & Co. of Pittsburg include some very extensive ones for boiler work. They have under erection at the present time three boilers for Timmes & Hecht of Scranton, Pa.; three for the New Haven Iron & Steel Co. of New Haven, Conn.; six for the McKenna Steel-working Co. at its new plant at Tremley Point, N. J., and two for the Ohio Falls Iron Co. of New Albany, Ind.; also orders for prompt shipment for two for the Louisville Bolt & Iron Co. of Louisville, Ky., and two for the Hager Steel & Iron Co. of Madison, Ill., making in all about 4000 horse-power. The firm has recently put in operation boilers for the American Sheet Iron Co. at Phillipsburg, N. J., and for J. G. Brill Co. at Philadelphia, Pa. It is now figuring on making shipments to England and France.

A High Testimonial.—The Western Electrical Supply Co. of St. Louis, which is the general sales agent for the Browning Manufacturing Co., reports that the success of the new type small Browning generators and motors has been extremely gratifying. It states that these motors and generators are the newest and most up to date that it has ever seen, and wherever installed they have given entire satisfaction. These small machines are the very highest grade obtainable, the material and workmanship the best, being tested by a four-hour run at a 10 per cent. overload and a one-hour run at a 50 per cent. overload before leaving the factory. They are made of the best cast dynamo steel, slotted armatures, has self-oiling ring bearings and carbon brushes. They are made in sizes from one-fifth to three and one-half horse-power and from one-eighth to two and one-half kilowatt, and especially adapted for both heavy and light work. A very attractive bulletin on these motors and dynamos will be sent on application.

TRADE LITERATURE.

Buffalo Steel Pressure Blowers.—These blowers are designed and constructed especially to withstand the strains of high-pressure duty. For supplying blast to cupolas, furnaces, forge fires and blast machines, and for any work where air is to be forced for a long distance, as in pneumatic-tube systems, their utility needs no demonstration. A brief yet thorough and illustrated catalogue of the Buffalo blowers has been issued for handy reference. The various types are fully illustrated and described, together with all the various accessories needed in their application. Also given are full tables of dimensions, speeds and capacities. This publication should be in the hands of everyone interested in the application of blowers for forced draft, cupola blowing or like service. Address the Buffalo (N. Y.) Blower Co.

Cypress Tanks.—A pamphlet recently issued by Messrs. Davis & Son of Palatka, Fla., gives an idea of the value of cypress wood for tanks. Its durability is something really wonderful, and it is noted for withstanding the action of the weather. Messrs. Davis & Son manufacture tanks, tubs and vats for all purposes out of this wood, and the catalogue contains a list of the sizes and prices.

An Extensive List.—The latest catalogue issued by Messrs. J. H. Bunnell & Co. of 20 Park Place, New York, gives an idea of the really enormous number of appliances required for electrical construction. This firm is one of the most prominent in the business, and prides itself upon acquiring every important improvement for telegraphic and other electrical apparatus. The catalogue referred to contains a description and price-list of everything in the electrical line from a sounder to an incandescent lamp. The firm also carries lines of tools for electricians. It has recently equipped a large factory in New York, but already it is working to the limit with orders for keys and sounders; also switchboards, medical batteries and other specialties.

Has Made Many Friends.—The Union Iron Works Co. of Selma, Ala., is a Southern industry which has made many friends throughout the country owing to the superior quality of the machinery which it manufactures and sells. From a recent catalogue an idea can be gained of the variety of work which it carries in stock. This not only includes engines and boilers, but cotton presses, rolling stock, steam appliances and grinding machinery. The company has one of the largest foundries and machine shops in the South, and makes a specialty of rebuilding locomotives.

The opening article of Leslie's Monthly for September is upon the art of photographing birds, written and beautifully illustrated by Mr. A. H. Verrill, who is himself past master of the art. Booker T. Washington, whose recent autobiography bids fair to become a classic, contributes an important paper on "How Work is Done at Tuskegee." It tells the whole secret of his success. A third article, which will be read by many people with astonishment and by all with interest, is an impartial account of the whipping-post as it is in operation in Delaware today. The question of corporal punishment can best be debated in this sole surviving practice of a custom that was once universal, for the arguments in its defense are powerful, and deserve much consideration.

The Engineering Magazine for September is an exposition number, opening with comprehensive and very finely illustrated articles by Dr. J. G. Kerr on "Engineering at the Glasgow Exhibition," by Prof. W. S. Aldrich on the "Mechanical and Electrical Features of the Buffalo Exposition," and by M. Georges Caye on the "Engineering Organization of a Great Exposition," reviewing the system and methods of the great Paris Fair of 1900. The pictures in this section, of which there are nearly sixty, are beautiful in themselves, while actually valuably illustrative of the features trated. With the critical text, the articles afford an adequate review of the engineering aspects of the three great exhibitions, with comparative surveys of the Chicago World's Fair and the Paris Exposition of 1889.

Growing interest in the subject of packing-houses for the South is shown by the announcement that it will be specially discussed at the Chicago meeting next December of the National Live-Stock Association.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

New Corporations.

It is reported that arrangements are being made to organize a new bank at Louisville, Ala., by local parties.

A. S. Steagall has been elected president of the First National Bank, recently organized at Abbeville, Ala.

W. N. Byers of Tracy City, Tenn., is interested in a bank which has been organized at Whiteville, Tenn.

W. C. Kenyon and others are interested in the organization of a bank at Newton, N. C., the capital to be $25,000.

A bank has recently been organized at Bonne Terre, Mo., with $10,000 capital stock, by Thomas Connelly and others.

Frederick Fleming is interested in the Dallas (Texas) Loan & Trust Co., recently formed with $50,000 capital stock.

The Bank of Jonesville, S. C., recently organized, has decided to erect a building for its own use, and expects to begin business in October.

The People's Bank is the name of the bank recently formed at Westboro, Mo. It has a capital of $10,000. Among those interested is H. J. Dunham.

The Bank of Colfax, La., has been organized, with $15,000 capital stock. J. H. McNeely has been elected president, and J. H. Williams, vice-president.

The Oakland Bank is the title of the bank recently organized at Mississippi. The capital is $40,000. Those interested include B. B. Harvey and I. C. Patterson.

The Home Savings Bank is the title of the institution recently organized at Macon, Ga. R. A. Merritt has been elected president, and R. J. Taylor, vice-president. The capital is $400,000.

The Steel City Bank, organized several months ago at Ensley, Ala., has secured a charter as a national bank, and arrangements have been made to begin business under this charter. J. W. Minor is president.

It is reported that the Atlanta Bank Stock Security Co., interested in a chain of banks in Georgia, has organized another in Boston, Ga., under the title of the Citizens' Bank. It has a capital of $25,000. W. S. Witham is president, and W. B. Sanders, vice-president.

New Securities.

The Citizens' Bank of Abbeville, Ga., has decided to increase its capital stock from $10,000 to $15,000.

The town of Lumpkin, Ga., has voted in favor of issue of $10,000 in bonds for improvement. Address the mayor.

The total issue of bonds proposed by the town of Sardis, Miss., is $15,000. The mayor may be addressed as to the date of sale.

R. G. Miller, mayor, will receive bids until September 16 for $4000 4 per cent. improvement bonds of Shepherdstown, W. Va.

The city of Bluefield, W. Va., will probably issue bonds for improvements to the extent of $30,000. The mayor may be addressed.

The city council of Pass Christian, Miss., has voted for an issue of $12,000 in 5 per cent. bonds for improvements. Address the mayor.

The total amount of bonds to be issued by Duval county, Fla., is $100,000. The county commissioners may be addressed at Jacksonville, Fla.

The total issue of bonds decided upon by the city of Asheville, N. C., is $200,000, and it is to bear 4 per cent. interest. The mayor may be addressed.

An issue of $125,000 of bonds for school purposes has been approved by the attorney-general. The bonds are to be issued by the city of Denton, Texas.

The Commissioners' Court of Webb county, Texas, is authorized to issue $25,000 in bonds for improvement. The commissioners may be addressed at Laredo.

An election will be held at Harrisonburg, Va., on September 17 to decide the question of issuing $30,000 in bonds for improvement. Address the town clerk.

The town of Cleveland, Tenn., will vote September 2 on the question of issuing $55,000 in 5 per cent. improvement bonds. The mayor will give further particulars.

The Central Stockyards Co. at Louisville, Ky., has given a deed of trust to the Louisville Trust Co. as trustee to secure an issue of $60,000 in 5 per cent. bonds.

Forden county, Texas, will probably place on the market an issue of $14,400 in bonds for refunding purposes. The board of commissioners may be addressed.

Messrs. Rudolph Kleybolte & Co. of Cincinnati, Ohio, purchased the issue of $8000 in bonds for Halifax county, North Carolina, paying 107. They bear 5 per cent. interest.

The school district of Salem, W. Va., has voted in favor of issuing $10,000 in bonds for building purposes. The chairman of the school board may be addressed at this town.

The board of supervisors of Sussex county, Virginia, have sold $30,000 in bonds at 4 per cent., which will refund a similar amount which has been bearing 6 per cent. interest.

The town of Gallatin, Tenn., will sell at public auction $6000 in 5 per cent. bonds for improvements. Sale will be held on September 14. The county treasurer may be addressed.

The issue of $350,000 in bonds of Houston, Texas, remains unsold, and it is possible may be placed on the market again in the near future. L. J. Tuffly is chairman of the finance committee.

J. B. Byrne, city recorder, may be addressed until September 3 relative to the issue of $200,000 in 4 per cent. bonds of the city of Nashville, Tenn. Bids will be received until date mentioned.

Financial Notes.

The Rockbridge Mutual Insurance Co. of Lexington, Va., has elected G. W. Ellinger, president, and R. C. Walker, secretary.

A syndicate which includes E. H. Lopez and others has purchased a controlling interest in the Bank of Bessemer, Ala. E. H. Lopez has been elected president as a result of the transfer of ownership.

The interstate convention of Southern bankers is to be held at Savannah, Ga., on June 10 next. It will be in session for several days. The date was recently decided upon at a meeting of representatives of the banks from Virginia, Georgia, North and South Carolina.

SOUTHERN COTTON-MILL STOCKS.

Quotations Furnished by Hugh MacRae & Co., Wilmington, N. C., for Week Ending August 27.

	Bid.	Asked.
Abbeville Cotton Mills (S. C.)	...	91
Aiken Mfg. Co. (S. C.)	90	93½
American Spinning Co. (S. C.)	...	103
Anderson Cotton Mills (S. C.)	...	129
Arkwright Mills (S. C.)	117	...
Augusta Factory (Ga.)	...	76½
Avondale Mills (Ala.)	82½	...
Belton Mills (S. C.)	...	101½
Bennettsville Mfg. Co. (S. C.)	...	100
Cabarrus Cot. Mills (N. C.) new	120	130
Clifton Mfg. Co. (S. C.)	175	...
Clinton Cotton Mills (S. C.)	121	...
Courtenay Mfg. Co. (S. C.)	117	120
Dallas Mfg. Co. (Ala.)	90	100
Darlington Mfg. Co. (S. C.)	...	96
Eagle & Phenix Mills (Ga.)	100	...
Enoree Mfg. Co. (S. C.)	112½	...
Enterprise Mfg. Co. (Ga.)	...	100½
F. W. Poe Mfg. Co. (S. C.)	116½	120
Gaffney Mfg. Co. (S. C.)	112	116
Granby Cotton Mills (S. C.)	100	...
Granby Cotton Mills (S. C.) 1st Pfd.	...	106
Graniteville Mfg. Co. (S. C.)	160	165½
Greenwood Cotton Mills (S. C.)	100	101
Grendel Mills (S. C.)	100	103½
Henderson Cotton Mills (N. C.)	120	125
Henrietta Mills (N. C.)	...	200
John P. King Mfg. Co. (Ga.)	95	100½
Langley Mfg. Co. (S. C.)	...	110½
Laurens Cotton Mills (S. C.)	139	145
Lockhart Mills (S. C.)	...	107½
Loray Mills (N. C.)	...	86
Louise Mills (N. C.)	...	100½
Lynchburg Cotton Mills (Va.)	125	130
Lynchburg Cotton Mills (Va.) Pfd.	145	150
Manchester Cotton Mills (S. C.)	...	115
Mayo Mills (N. C.)	150	...
McColl Mfg. Co. (S. C.)	...	100½
Newberry Cotton Mills (S. C.)	113½	...
Orr Cotton Mills (S. C.)	...	102
Pacolet Mfg. Co. (S. C.)	...	200
Pelzer Mfg. Co. (S. C.)	172	180
Piedmont Mfg. Co. (S. C.)	...	180
Raleigh Cotton Mills (N. C.)	116	...
Richland Cotton Mills (S. C.)	104	107
Richland Cotton Mills (S. C.) Pfd.	100	104
Roanoke Mills (N. C.)	90	...
Sibley Mfg. Co. (Ga.)	78	81
Southern Cotton Mills (N. C.)	96	100
Spartan Mills (S. C.)	130	138
Trion Mfg. Co. (Ga.)	125	135
Tucapau Mills (S. C.)	128	...
Union Cotton Mills (S. C.)	...	148
Union Cotton Mills (S. C.) Pfd.	100½	105½
Victor Mfg. Co. (S. C.)	106	...
Warren Mfg. Co. (S. C.)	90	...
Warren Mfg. Co. (S. C.) Pfd.	104½	...
Washington Mills (Va.)	100	...
Whitney Mfg. Co. (S. C.)	...	120
Wilmington Cot. Mills (N. C.) Pfd.	100	105
Wiscassett Mills (N. C.)	115	...

Popular With Patrons.—The Colonial Paint & Varnish Co. of Cleveland, owing to its success with Colonial Oil, is erecting a permanent plant for its exclusive manufacture with a capacity of 2000 gallons per day.

Reduced Rates to Cleveland via Pennsylvania Railroad, Account G. A. R. Encampment.

On account of the Thirty-fifth Annual Encampment of the Grand Army of the Republic, to be held at Cleveland, Ohio, September 10 to 14, inclusive, the Pennsylvania Railroad Co. will sell excursion tickets to Cleveland from stations on its line at greatly reduced rates.

Tickets will be sold and good going September 8 to 12, inclusive; good to return until September 15, inclusive; but by depositing ticket with joint agent at Cleveland prior to noon of September 15, and the payment of fifty cents, return limit may be extended to October 8, inclusive.

For specific rates and further information apply to ticket agents. †

Pennsylvania Railroad Special Excursions to Pan-American Exposition.

The Pennsylvania Railroad Co. will run special excursions to Buffalo on account of the Pan-American Exposition from Baltimore and adjoining territory on September 5, 11, 17 and 26. Round-trip tickets, good going only on special train leaving Baltimore 9.05 A. M. and York 10.43 A. M., and on local trains connecting therewith, and good to return on regular trains within seven days, including day of excursion, will be sold at rate of $10 from Baltimore, and proportionate rates from other points. Tickets will be good for passage in parlor cars and sleeping cars on payment of usual Pullman rates. Stop of thirty minues will be made at Williamsport for luncheon. For specific time and rates, consult local ticket agents. †

TOUR TO THE PACIFIC COAST.

Another Opportunity to Visit California Under the Auspices of the Pennsylvania Railroad's Personally-Conducted System.

In view of the great popularity of transcontinental travel under the personally-conducted system, as evinced in the recent Pennsylvania Railroad tour to the Pacific coast and Canadian Northwest, that company has decided to run another tour to the Pacific coast, including in the itinerary a visit to the world-famous Grand Canon of Arizona, in the early fall. The tour will leave Baltimore on Monday, September 23, and reach home Tuesday, October 22.

As in former tours to California under the auspices of the Pennsylvania Railroad, a special train, composed of the highest class of Pullman equipment, will be utilized during the entire trip. Excellent meals will be served in the dining cars attached to the train during the entire journey, except during the stops at San Francisco and in Chicago. An observation car will appeal to all who delight in scenery. Few trips afford so great a diversity in nature's beauties as the one outlined below. Westward bound, the tourists will pass through the wild slopes of the Colorado Rockies, around the Great Salt Lake, and over the fastnesses of the Sierra Nevada. After visiting all the beautiful resorts on the sunny California slopes, the eastward journey will be through the Arizona desert to the Grand Canon of Arizona. Its beauties cannot be painted in mere words. Magnificent in coloring, awful in its depths, it stands among the natural wonders of the world. Thence across the plains to St. Louis, and eastward through Illinois, Indiana, Ohio and Pennsylvania, the tourists reach their destination just thirty days after leaving home.

The various transcontinental lines having made low rates on account of the General Triennial Convention of the Protestant Episcopal Church, the Pennsylvania Railroad Co. is enabled to offer this superb vacation trip at the low rate of $185 for the round trip from Baltimore or any point on Pennsylvania Railroad east of Pittsburg, one in a berth, and $165 for the round trip, two persons occupying the same berth.

Diagrams are now open, and as the number who can be accommodated will be strictly limited, names should be registered immediately.

For further information and descriptive pamphlet, apply to George W. Boyd, Assistant General Passenger Agent, Broad Street Station, Philadelphia, or B. Courlaender, Jr., P. A. B. D., northeast corner Baltimore and Calvert streets, Baltimore, Md. †

TABLE OF CONTENTS.

EDITORIAL: Page.
Great Southern Resources ... 85
Stuyvesant Fish and Party Politics ... 85
No Room for Drones ... 85
Food-Producing Politics ... 86
To Advance Cotton Trade ... 86
Building for the Future ... 86
Wise Handling of Forests ... 86

Southern Farm Magazine ... 86
Kentucky for Good Roads ... 86
The Agricultural Possibilities of the South ... 87
A Question of Bread and Butter ... 88
Industry at Richmond ... 89
Building Large Tanks ... 90
Kentucky Oil Fields ... 90
Advance at Birmingham ... 90

FOREIGN TRADE:
Coal in the Mediterranean ... 90
Southern Trade with Manchester ... 90
Rotterdam and the South ... 90
Exports from Newport News ... 90
Will Settle in the Philippines ... 90
Notes ... 90
Possibly a New Industry ... 90

RAILROADS:
Goulds and Norfolk & Western ... 91
Improvements at Jacksonville ... 91
Depot at Knoxville ... 91
Important Project ... 91
Oil Burning Engines ... 91
Railroad Notes ... 91
Quotations of Cotton Yarns ... 91

TEXTILES:
Record of Inventive Progress ... 91
To Make Textile Machinery ... 91
A 7200-Spindle Mill for Georgia ... 91
South Carolina Mills ... 91
Doubling a 3000-Spindle Mill ... 91
Textile Notes ... 91

PHOSPHATES:
Phosphate Markets ... 92
Phosphate and Fertilizer Notes ... 92
Cottonseed-Oil Notes ... 92

LUMBER:
Lumber Market Reviews:
Baltimore ... 92
Norfolk ... 92
Savannah ... 92
Mobile ... 92
Memphis ... 92
Beaumont ... 93
Lumber Notes ... 93
Literary Notes ... 93

MECHANICAL:
The Chase Wood-Rim Pulley (Illus.) ... 94
Ransome Concrete Mixer (Illus.) ... 94

CONSTRUCTION DEPARTMENT:
New Enterprises ... 95
Building Notes ... 97
Railroad Construction ... 97
Machinery Wanted ... 98
Trade Notes ... 99
Trade Literature ... 99

FINANCIAL NEWS:
New Corporations ... 100
New Securities ... 100
Financial Notes ... 100
Southern Cotton-Mill Stocks ... 100

Hambleton & Co.

Bankers and Brokers,

Members New York and Baltimore Stock Exchanges.

9 South Street, BALTIMORE.

High-grade Investment Bonds, Municipal, Railway, Industrial.

Letters of Credit Available Everywhere.

THE CONTINENTAL TRUST COMPANY,

BALTIMORE, MD.

Capital, - - $2,000,000
Surplus, - - - 3,000,000

Transacts a General Trust Business.

Acts as Fiscal Agent for the payment of Bonds, Coupons, Dividends, etc., of States, Municipalities, Railroads and other Corporations; as Trustee under Mortages or Deeds of Trust securing Issues of Bonds, and as Registrar and Transfer Agent of Stocks and Bonds; as Trustee of Estates and Individuals; as Administrator, Executor, Guardian and Receiver.

A Legal Depository for Court and Trust Funds. Money Loaned on Approved Collateral. Interest Paid on Deposits.

OFFICERS:

S. DAVIES WARFIELD, Pres.
WILLIAM A. MARBURG, Vice-Pres.
FREDERICK C. DREYER, Sec-Treas.

George B. Baker. George S. Edgar.

BAKER, EDGAR & CO.,

Bankers and Brokers,

Members Baltimore Stock Exchange.

Correspondence invited. BALTIMORE.

Merchants' & Farmers' Nat. Bank

CHARLOTTE, N. C.

Capital, $200,000. Surplus and Profits, $75,000.

Prompt and intelligent attention to all business intrusted to us.

Correspondence invited.

Dr. J. H. McAden, Pres. Jno. M. Miller, Jr., Cash.
N. Y. Correspondent:
SEABOARD NATIONAL BANK.

Spencer Trask & Co.

BANKERS

27 & 29 Pine St., New York

Transact a general banking business; act as Fiscal Agents for corporations, and negotiate security issues of railroads and other companies. Execute commission orders and deal in

INVESTMENT SECURITIES.

Members New York Stock Exchange.

Branch Office 65 State St., Albany

DELAWARE TRUST COMPANY, Inc.

Charters Secured and Organizations Effected.

The Delaware Law offers Fullest Security to Stockholders at a minimum cost. Meetings may be held outside of the State. Charters cannot be repealed by the legislature. Full information, copies of the law, requisite blank forms, etc., furnished upon application.

902 Market Street, Wilmington, Del.

MOTTU, DeWITT & CO.

Southern Investments,

NORFOLK, VA.

Correspondence Invited.

JOHN L. WILLIAMS & SONS,

BANKERS,

Dealers in RICHMOND, VA.

Southern Investment Securities,

MUNICIPAL BONDS A SPECIALTY.

Correspondence Invited.

EDWARD H. THOMSON & SONS,

Bankers and Brokers,

10 South Street, BALTIMORE.

Members of Baltimore Stock Exchange.
Dealers in High Class Securities.

Collateral Loans Negotiated.

MARYLAND TRUST CO.

N. W. Cor. Calvert and German Sts.

BALTIMORE.

CAPITAL, - - $2,125,000.00
SURPLUS, - - 2,437,500 00

A LEGAL DEPOSITORY FOR COURT AND TRUST FUNDS.

Acts as Financial Agent for States, Cities, Towns, Railroads and other Corporations. Transacts a General Trust Business. Lends money on approved security. Allows interest on special deposits. Acts as Trustee under Mortgages, Assignments and Deeds of Trust; as Agent for the Transfer or Registration of Stocks and Bonds and for the payment of coupons, interest and dividends.

J. WILLCOX BROWN, President.
LLOYD L. JACKSON, First Vice-Pres.
HENRY J. BOWDOIN, Sec. Vice-Pres.
J. BERNARD SCOTT, Secretary and Treasurer.
CARROLL VAN NESS, Asst. Secy. and Treas.

DIRECTORS.

J. Willcox Brown,	Henry Walters,
Wm. A. Marburg,	H. A. Parr,
Lloyd L. Jackson,	B. N. Baker,
Geo. A von Lingen,	Andrew D. Jones,
H. J. Bowdoin,	James Bond,
Joshua Levering,	John A. Tompkins,
W. B. Brooks, Jr.,	Clayton C. Hall,
John S. Wilson,	J. D. Baker,
Fred'k W. Wood,	Josiah L. Blackwell,
Seymour Mandelbaum,	George C. Jenkins,
Leopold Strouse,	John Pleasants.

Mercantile Trust & Deposit Co.

OF BALTIMORE.

Paid-Up Capital, $2,000,000.00
Surplus and Undivided Profits. $3,500,000.00

DEPOSITS RECEIVED,
on which interest is allowed, governed by current rates obtainable.

TRUSTEES AND ADMINISTRATORS.

This Company is a *Legal Depository* for funds in the hands of Trustees or Administrators, and allows interest on same pending distribution.

Authorized to act as Executor, Administrator, Guardian, Receiver or Trustee

ACTS as Trustee of Mortgages of Corporations and accepts Transfer Agency and Registry of Stocks.

Safe Deposit Boxes for Rent.

Vaults supplied for storage of Silver Chests, etc.

JOHN GILL of R., President.

Hugh MacRae & Co.

BANKERS,

Wilmington, N. C.

Dealers in Investment Securities, Stocks and Bonds of Southern Corporations.

International Trust Co.

OF MARYLAND.

CAPITAL, - - - $2 000,000
SURPLUS, - - - 1,000,000

GENERAL TRUST business transacted.
DEPOSITS received and interest allowed on daily balances, subject to check.
SPECIAL RATES of interest on TIME deposits.
MONEY LOANED on approved security
ACTS as Executor, Administrator, Trustee, Guardian, etc.

OFFICERS.

PRESIDENT,
DOUGLAS H. GORDON,

VICE-PRESIDENTS,
J. WM. MIDDENDORF,
EDWARD H. THOMSON.

SEC. AND TREAS.,
CHARLES D. FENHAGEN,

CHAIRMAN EXECUTIVE COMMITTEE,
JOSHUA LEVERING.

DIRECTORS.

Joshua Levering,	Wm. C. Seddon,
Isaac H. Dixon,	Francis E. Waters,
Summerfield Baldwin,	Simon Rosenburg,
Richard H. Edmonds,	Chas. H. Koppelman,
J. Wm Middendorf,	Lloyd Lowndes,
Charles T. Westcott,	Stevenson A. Williams,
Angus Cameron,	B. Howard Haman,
Wm. A. Marburg,	Robert Ramsay,
John T. Stone,	S. C. Rowland,
Douglas H. Gordon,	Townsend Scott.
Bernard N. Baker,	Edward H. Thomson.
Seymour Mandelbaum,	

R. Lancaster Williams, Richmond.
William C. Lovering, Massachusetts.
W. A. MacCorkle, Charleston, W. Va.
C. Sidney Shepard, New York.
Walter H. Doyle, Norfolk, Va.
W. A. Hemphill, Atlanta, Ga.
George W. Watts, Durham, N. C.
F. W. Roebling, Trenton, N. J.

J. WM. MIDDENDORF. Members Baltimore Stock Exchange.

J. WM. MIDDENDORF & CO.
BANKERS AND BROKERS,

Continental Trust Bldg. [KEYSER BUILDING.] **Baltimore, Md.**

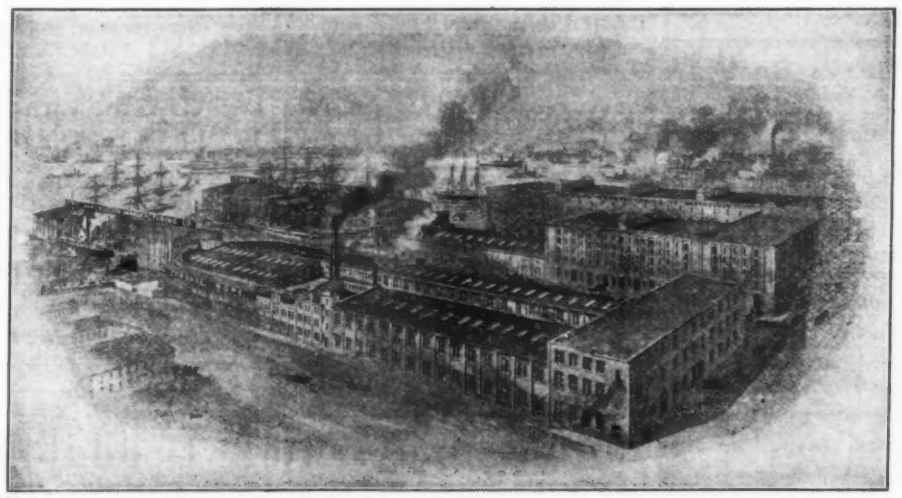
Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished.

MANILA, SISAL and JUTE Ropes.

THE AMERICAN MANUFACTURING COMPANY,

63-65 Wall Street, NEW YORK.

FINISHED INDIA Twines. Bale-Rope.



SPECIAL

"AMERICAN" JUTE ROPE, For Baling Textile Fabrics.

"AMERICAN" TRANSMISSION ROPE.

"A LITTLE BLUE BOOK ON 'ROPE TRANSMISSION' sent free on request.

Largest Capital of Any Bank or Trust Company in the South Atlantic States.

RICHMOND TRUST AND SAFE DEPOSIT COMPANY.

N. W. Cor. 10th and Main Streets, RICHMOND, VA.

CAPITAL, $1,000,000.

Does a general Trust Company business. Acts in all Fiduciary capacities. Receives deposits and allows interest thereon.

President, - - - JOHN SKELTON WILLIAMS.
Vice-Presidents, - - { JAMES H. DOOLEY, HENRY L. CABELL.
Treasurer, - - - LEWIS D. CRENSHAW, JR.

CORRESPONDENCE INVITED.

That Fine Water Power

On the Catawba River, between Lancaster and Chester, S. C., and just below railroad crossing, known as **"CATAWBA FALLS,"** is for sale by the

SOUTHERN STATES TRUST CO.
CHARLOTTE, N. C.

Incorporate Under the Laws of West Virginia

NO LIMIT ON THE CAPITAL.

Liable only for the amount subscribed. Can organize at once. License and fees lower than any other State. Full information as to how given on application to the undersigned.

EDWARD CORDER, SPENCER, W. VA.,
ATTORNEY AT LAW.
Formerly Chief Clerk to Secretary of State.

We are now sending out representatives (free of charge in New York City and at the cost of travelling expenses only outside of the City) for the purpose of inspecting in confidence the books of firms and corporations to be closed as of June 29. These inspections enable us to quote prices for annual or semi-annual audits of books and accounts.

The Audit Company

OF NEW YORK,

43 Cedar Street.

Telephone—3959 John.

STOCKHOLDERS' COMMITTEE

OF

The American Cotton Oil Co

To the Holders of Preferred and Common Stock of the American Cotton Oil Co.:

Holders, to a large amount, of Preferred and Common Stock of the American Cotton Oil Co. have entered into a Stockholders' Agreement (dated July 22, 1901, and lodged with the Depositary) for the purpose of furthering a consolidation or other disposition of property of, or the acquisition or lease of property by, the American Cotton Oil Co., and for the advancement of the interests of depositing stockholders through united action, whereby their respective holdings shall be held and managed in bulk during the period of the Agreement, and better results be secured than by individual action.

The undersigned have consented to act as a Committee under said Agreement, and hereby afford holders of the Preferred and Common Stock of the American Cotton Oil Co. the opportunity of participating in the benefits of said Agreement by thereunder depositing their stock with the First National Bank of the City of New York, as Depositary, on or before the 30th day of September, 1901.

Negotiable Certificates of Deposit will be issued for the deposited stock.

Copies of the said Stockholders' Agreement may be obtained from the Secretary of the Committee.

Dated New York, August 1, 1901.

GEORGE AUSTIN MORRISON, Chairman,
HARRIS C. FAHNESTOCK,
EDWARD WINSLOW,
J. KENNEDY TOD,
Stockholders' Committee.

SULLIVAN & CROMWELL, Counsel.

R. F. MUNRO, Secretary to Committee, 27 Beaver St., New York City.

MODEL Fruit Evaporator.

A little factory for only $5.00. For use on an ordinary cook stove. No extra expense for fuel. Easily operated. Evaporates apples, pears, peaches, all kinds of small fruits and berries, corn, pumpkin and squash. Send for circulars. A great seller. Good discount to trade.

Manufactured only by

H. McK. WILSON & CO.,
204 Market St., St. Louis, Mo.

The BROUGHTON

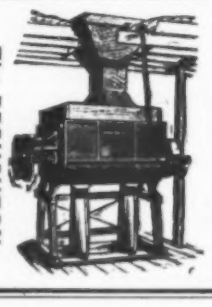
DRY MIXER

FOR

Hard Plaster, Cement, Paint, &c.

W. D. DUNNING,

96 W. Water St., SYRACUSE, N. Y.



PROPOSALS.

TREASURY DEPARTMENT, office Supervising Architect, Washington, D. C., August 19th, 1901. Sealed Proposals will be received at this office until 2 o'clock p. m., on the 10th day of September, 1901, and then opened, for the installation of an ash-handling apparatus for the U. S. Custom House and Post Office at St. Louis, Mo., in accordance with drawings and specification, copies of which may be obtained at this office or at the office of the Custodian, St. Louis, Mo., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

TREASURY DEPARTMENT, Office Supervising Architect, Washington, D. C., August 20, 1901.—Sealed Proposals will be received at this office until 2 o'clock P. M. on the 5th day of September, 1901, and then opened, for a Heating Apparatus for the Surgeon's Quarters at the U. S. Quarantine Station, Reedy Island, Delaware, in accordance with drawing and specification, copies of which will be furnished, at the discretion of the Supervising Architect, upon application to this office. JAMES KNOX TAYLOR, Supervising Architect.

U. S. ENGINEER OFFICE, 166 Granby St., Norfolk, Va., August 5, 1901.—Sealed proposals for constructing sea wall at Fort Monroe, Va., will be received here until 12 M. September 6, 1901, and then publicly opened. Information on application.

Power House Equipment.

Bids for the Power House and Sub-Station equipments, amounting to about 3000 K. W. capacity, consisting of Engines, Generators, Boilers, Piping, Transformers, Rotaries, Switchboards, etc., for the Pittsburgh, McKeesport & Connellsville Railway Company, are requested.

Plans and specifications may be obtained by request at the office of Westinghouse, Church, Kerr & Company, Engineers, No. 26 Cortlandt Street, New York, on and after August 15th, 1901.

Bids must be addressed to M. R. McAdoo, General Manager, and must be submitted before noon on Wednesday, September 4th, 1901, at the office of the Railway Company, Room No. 1001, Bank for Savings Building, Pittsburgh, Pa.

Three Valuable Patents and Rights

FOR SALE.

As administrator, I offer three meritorious inventions for sale, invented and patented by the late John T. Eldridge: (1) Corkscrew; (2) Combination Lock; (3) Locking Stop Cock.

The Corkscrew Patent is especially worthy, and is a decided improvement on anything of the kind now on the market. It will extract corks from any sized bottle without exertion.

The Combination Lock is thoroughly reliable and durable, and is intended for outside of box cars, storehouses, barns, etc. Operated without key.

The Stop Cock is for train pipes on air brake systems, and makes tampering by unauthorized persons with the air system almost impossible.

Thorough investigation is invited.

Specifications and descriptions sent upon request. The Patents will be sold at a sacrince.

Address **L. J. LAWRENCE,**
MURFREESBORO, N. C.

FOR SALE—LOCOMOTIVES, 36" Gage.

2 10x16 4-wheel Con. with tenders.

1 9x14 4-wheel Con. with forward truck and tender.

1 6-ton Byers geared. All strictly first-class.

SCOTT, LOW & CO.

Empire Building. PITTSBURG, PA.

YOUNG, Capable Business Manager, at present engaged as manager for corporation handling large financial interests, desires change, is open for engagement. Would like to hear from party desiring to relinquish active works to younger hands. Address MANAGER, care Manufacturers' Record.

The Boomer & Boschert

KNUCKLE JOINT

PRESS

For Baling Cloth, Paper, Yarn, &c.

Or for any other purpose requiring great pressure.

BOOMER & BOSCHERT PRESS CO.

386 W. Water St., Syracuse, N. Y.

Managers of mills, factories, furnaces, mines, etc., and parties starting manufacturing enterprises and needing machinery or supplies of any kind will find it profitable to consult the advertising columns of the Manufacturers' Record. Its pages contain names of the best houses in the country among manufacturers of and dealers in machinery and mill supplies.

THE MILNER & KETTIG CO.,

MANUFACTURERS OF

Machinery, Mining and Plumbing Supplies.

WRITE FOR PRICES.

'Porcupine" Dry Kilns. **Birmingham, Ala.**

CAPITAL SECURED

Corporations formed Developing Industrials, Mines, Electric and Water Plants, Railways and Inventions. Bonds and Stocks underwritten and guaranteed by strongest New York Financial Institutions.

LOUIS B. MAGID & CO., Bankers & Brokers, 25 Broad Street, New York City.

HUNT INDUSTRIAL RAILWAYS

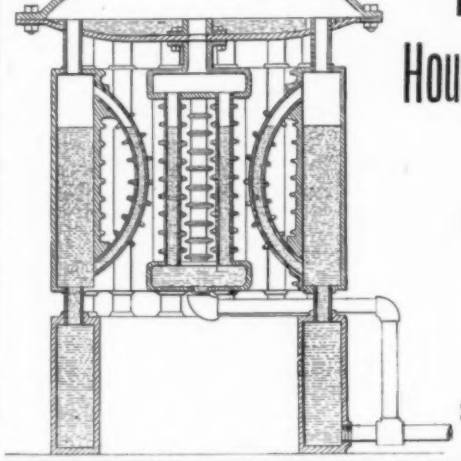
A narrow gauge system of track and cars for handling and transporting heavy and bulky materials of all kinds in manufacturing establishments, power stations, &c.

STANDARD SHOP CAR.

Cars built to suit every variety of service, and so designed that they run around a curve of 12 feet radius.

C. W. HUNT CO.

3 Van St., West New Brighton, N. Y.



The CHALLANGE House Heating Boiler

For Steam or Hot Water

HAS NO SUPERIOR.

Thoroughly tested in actual practice. Patterns and patent rights for sale outright or satisfactory arrangements made on royalty. For particulars, address,

S. L. HOLT & CO., Boston, Mass.
No. 67 Sudbury Street.

A time and labor saver—easily and quickly operated—strong and durable. It is a

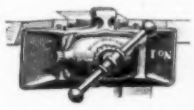
Patern-Makers' or Wood-Workman's Vise

and is adopted by many of the leading Patern Makers and Wood Working Shops in this country and abroad.

Write for Illustrated Catalog and Price List.

Adaptable to any conceivable position to suit the convenience and comfort of the workman.

EMMERT MFG. CO., Waynesboro, Pa., U.S.A.



High-Grade BARYTES and TALC.

ALSO

Ground Soapstone and Talc for FURNACE and FOUNDRY Purposes.

CAROLINA MINERAL CO., (Mines and Mills,) **Marshall, N. C.**

NEW YORK OFFICE, 140 Maiden Lane. All shipments made at Marshall. Send for samples.

STOCK AND BOND ISSUES of either new or old corporations UNDERWRITTEN AND GUARANTEED at par, affording ABSOLUTE PROTECTION to Investors, and ASSURING A PROMPT AND SATISFACTORY SALE of securities for which we contract to furnish a guaranty and underwriting.

THE SECURITIES GUARANTY CO.

Corporations and Promoters are invited to correspond with us.

222 SOUTH THIRD ST., PHILADELPHIA, PA.

M. R. JACOBS,

Cotton and Cotton Goods Broker,

Member New York Cotton Exchange. 56 Worth St., NEW YORK.

Cotton for Future Delivery. Cloth Accounts Solicited.

RICHARD A. BLYTHE,

COTTON WARPS AND YARNS,

No. 114 Chestnut Street, PHILADELPHIA, PA.

BUCKINGHAM, PAULSON & CO., Commission Merchants,

NEW YORK. **COTTON YARNS,** PHILA. CHICAGO.

CORESPONDENCE AND CONSIGNMENTS SOLICITED.

ALPHABETICAL INDEX OF ADVERTISERS.

Ads. marked * appear every other week. Ads. marked † appear in first issue of the month. Ads. marked ‡ not in this issue.

For CLASSIFIED INDEX See Pages 3, 5, 7, 9, 11, 13, 15 and 17.

A

Abrasive Material Co. 31
Acme Steel & Mal. Iron Wks. 21
Adams, Henry 6
Adams, J. M. 11
Adams Laundry Machinery Co. 2
Affleck, Geo. E. 32
Aitchison, Robt., Perf. Met. Co. 40
Alabama Con. Coal & Iron Co. 54, 36
Alabama Iron Works *
Alber & Bryne 6
Albro-Clem Elevator Co. 53
Alcott, T. C., & Sons 51
Alexander Bros. 25
Alexander, S. B., Jr., Co. 54
Allington & Curtis Mfg. Co. 56
Alpha Photo-Engraving Co. 48
Alpha Portland Cement Co. 8
Alsing, J. R., Co 38
American 47
American Arithmometer Co 9
American Blower Co 17
American Bridge Co †
American Cement Co. 8
American Cotton Oil Co. 28, 48
American Diam'd Rock Drill Co. 39
American Electric Fuse Co. 54
Amer. Elec. Sup. & Mfg. Co. 35
American Injector Co. 2
American Iron & Steel Mfg. Co. 36
American Locomotive Co 13
American Mfg. Co. 27
American Sheet Steel Co. 26
American Ship Windlass Co. 12
American Spiral Pipe Works 50
American Steam Gauge & Valve Mfg. Co 20
American Steel Hoop Co. 5
American Supply Co. *
American Tool Works Co. 37
American Type Founders Co. 49
Andrews, Perry, & Bro. 50
Arctic Machine Co 23
Armitage Mfg. Co. 42
Armstrong, R. S., & Bro. 34
Asher, A. 35
Asphalt Ready Roofing Co. 42
Associated Expanded Metal Co ‡
Atherton Machine Co., The A. T. 48
Atkins, E. C., & Co. 45
Atlantic Transport Co. 49
Atlas Engine Works 14
Atlas Pipe Wrench Co. 51
Audit Co. of New York 28
Aultman Co. 10
Austin, F. C., Mfg. Co 38
Austin Separator Co. 23

B

Babcock, H. H., Co. 55
Babcock & Wilcox Co. *
Bacon Air Lift Co. 50
Badger, E. B., & Sons Co. 41
Baeder, Adamson & Co. 31
Baer, Richard P., & Co. *
Bailey-Lebby Co. 40
Bailey, John T., & Co. 26
Baird, U., Machinery Co. 34
Baker, H. C., & Co 34
Baker, Edgar & Co. 27
Balderston, H., & Son 10
Baldwin Locomotive Works 13
Ball Engine Co. 14
Ball & Wood Co. 15
Baltimore Engraving Co. 49
Baltimore & Ohio Railroad Co. 49
Baltimore Steam Packet Co. 49
Barber, A. H., Mfg. Co. 22
Barnes, W. F., & John, Co. *
Barnett, G. & H., Co. 56
Barrett Mfg. Co. 26
Bartlett, Hayward & Co. 41
Bates, James, Sons 52
Beach, H. W. 44
Beardsley Gravity Dam & Con. Co 50
Belmont Iron Works 32
Benbow, W. C., Co. 32
Benjamin Iron & Steel Co 35
Berryman, James 18
Bertsch & Co. *
Besly, C. H., & Co. 56
Bickford Drill & Tool Co. 37
Bird, J. A., & W., & Co. 42
Bird, Wm. M., & Co. 8
Birmingham Boiler Works 18
Birmingham Rail & Loc. Co. 35
Blakeslee Mfg. Co. 17
Blanton, Jr., E. A 40
Blythe, Richard A. 28
Bolles, J. E., Iron & Wire Wks. 10
Bonar, James, & Co. 21
Bonneville Portland Cement Co. 8
Boomer & Boschert Press Co. 28
Bordenkircher, Samuel 30
Bostedo Pneumatic Tube Co. 10
Boston & Maine Railroad 49
Boston Belting Co. 25
Boston Blower Co. 44
Bourse, The 26
Bowler, George H 32
Bowser, S. F., & Co. 56
Bowsher, N. P., Co. 44
Bradley Pulverizer Co. 39
Bradstreet Mercantile Agency 48
Brobston, Fendig & Co. 30
Broomell, Schmidt & Co., Ltd. †
Brown, A. & F., Co. 38
Brown Cotton Gin Co., The 47
Brownell, The, & Co. 14
Brubaker, W. L., & Bros. 36
Bryan, Andrew J., & Co. 6
Buckeye Iron & Brass Works 48
Buckingham & Paulson 28
Buffalo Forge Co. 56
Builders' Iron Foundry ‡
Bunnell, J. H., & Co. 54
Bunnell Machinery Co 38
Burger Iron & Wire Works 10
Burnam Grate Co. 22
Burrowes, E. T., Co. 3
Burt Mfg. Co. 3
Bushnell, G. H., Press Co. 47
Bushong, M. M. 40
Byers, John F., Machine Co. 21

C

Caldwell H. W., & Son Co. 4
Caldwell, W. E., Co. 49
Cameron, A. S., S. Pump Wks. 50
Cameron & Barkley Co. 38
Camp Engineering Co. 32
Campbell & Clute †
Carbondale Chemical Co. 22
Carborundum Co. 31
Cardwell Machine Co 48
Carlin Machinery & Supply Co. 34
Carnell, George 41
Carolina Fire Brick Works 7
Carolina Mineral Co. 28
Carolina Portland Cement Co. 3
Caroline Iron Works 40
Carpenter, George B., & Co. 52
Carver Cotton Gin Co. 47
Cary Spring Works 10
Case Mfg. Co. 52
Casey, D. L., Machine Co. 32
Castner, Curran & Bullitt 54
C. & B. Line 48
Cedartown Co. 30
Champion Machine Co 46
Chandlee Fence Co 10
Chapman, W. A., & Co. 6
Charlotte Roof & Paving Co. 42
Chase Pulley Co. 10
Chattanooga Machinery Co. 44
Chattanooga Paint Co. 41
Chesapeake Electric Co. 55
Chesapeake Steamship Co. 49
Chester Steel Castings Co. 12
Chicago House Wrecking Co. 33
Chicago Knife Works 44
Childs, O. J., Co. †
Cin., Hamilton & Dayton R.R. 49
Clarendon Boiler Works 49
Clark, W. J., Co. 3
Clark Bros. 21
Clayton Air Compressor Works 3
Cleveland Belting & Mch'y. Co. 35
Cleveland, Lorain & Wheel'g Ry. 49
Cleveland Term. & Valley R. R. 49
Cliff & Guibert Co 7
Climax Mfg. Co 13
Cochran Co. 22
Codd, E. J., Co. 35
Coe Mfg. Co. 45
Cohoes Iron Foundry & Mch. Co. †
Collier & Brown 6
Colonial Paint & Varnish Co. 42
Columbia Bridge Co. 6
Columbus Machine Co. 16
Columbus Machinery Co. 47
Commercial Electric Co. 54
Conard, Thos. P 32
Connor, W. D. 30
Continental Trust Co. 27
Contractors' Plant Mfg. Co., Ltd. 21
Cook's, Adam, Sons 21
Cook Well Co. 50
Corder, Edward 27
Cordesman, Meyer & Co. 45
Cornell, J. B., & J. M. 44
Cortright Metal Roofing Co. 42
Cotton Oil & Fibre Co. 47
Covert Mfg. Co. 4
Cox, Justice, Jr., & Co., Ltd. 36
Cresson, Geo. V., Co. 38
Crippen, H. D 39
Crocker-Wheeler Co. 54
Crooked Fork Coal & Coke Co. 54
Crosby Steam Gage & Valve Co. 5
Crown Dryer Co. 40
Crumlish Forge Co. 9
Curran, Jas. H., Elevator Co. 53
Cutler Mfg. Co. 56
Cypress Lumber Co. 49

D

Dallett & Co. 36
Dart, E M., Manufacturing Co. 18
Davis Coal & Coke Co. 54
Davis, F. H., & Co. 34
Davis, G. M., & Son 49
Davis, Jno., Co. 23
Dawson, A. L., & Co. 34
Dean Bros. Steam Pump Works 50
Dehner-Wuerpel Mill Bldg. Co. 24
Delaware Trust Co. 27
De Loach Mill Mfg. Co. 44
Denihan, J. F. 35
DePuy, M. †
De Ronde, Frank S., Co. 43
Detroit Graphite Mfg. Co. 26
Detroit Lubricator Co. 19
Diamond Machine Co. 56
Dietz, R. E. 54
Dimmick Pipe Co. 50
Dixon, Jos., Crucible Co. 56
Dodge Mfg. Co. 24, 53
Dopp, H. Wm., & Son 36
Doughtry, D. T., & Co. 30
Dow Wire Works Co. 10
Dowman Mfg. Co. 41
Downie Pump Co. 51
Draper Co. 46
Du Bois Iron Works 44
Dufur & Co. 10
Dunning, W. D 28
Dupont Mfg. Co. *
Dyson, Joseph, & Sons 37

E

Eastern Granite Roofing Co. *
Eaton & Prince Co. 53
Eckbold's, Wm., Sons 35
Eclipse Machine & Boiler Wks. 34
Edson Mfg. Co. 51
Ellington Mfg. Co. 16
Emmert Mfg. Co. 28
Erikson, Edward E. 6
Etting, Edward J 26
Eureka Fire Hose Co. 24
Eureka Iron Co. 20
Eureka Supply Co. 10
Excelsior Knitting Mch. Mfg. Co. 47
Exeter Machine Works 21
Exeter Machine Works 22

F

Fairbanks Co. 16
Fairmount Machine Co. 46
Farquhar, A. B., Co., Limited 16
Faunt Le Roy & Co. 52
Fay, J. A., & Egan Co. 45
Fayerweather & Ladew, Inc. 24
Felton, S. A., & Son Co. 47
Fernholtz Brick Machinery Co. 41
Finished Steel Co. 10
Fitz-Hugh & Co. 36
Flint & Walling Mfg. Co. 51
Florida Iron & Wood Works 45
Flower, Walter, L., & Co. 20
Foos Mfg. Co. 39
Fox, M. Ewing, & Co. *
Frank Machinery Co. 45
Frantz-Gage Mfg. Co. 51
Freese, E. M., & Co. 40
French, A., Spring Co. 13
French, Sam'l. H., & Co. *
Frick Co. 22
Froehling, Dr. Henry 6

G

Galena Oil Co. 26
Galt, John, & Sons *
Gandy Belting Co. 24
Gardner Governor Co *
Garden City Sand Co 8
Garfield Paint Co. 42
Garrett, C. S., & Son 42
Gem City Boiler Co 18
General Concentrates Co 39
General Electric Co. 55
General Fire Extinguisher Co. 6
Gen'l Incandescent Arc Light Co. 54
Genuine Bangor Slate Co. 12
George Foundry & Mach. Wks. 40
Gibbes, W. H., & Co. 47
Gilbert, C. M., & Co. 8
Girard Boiler & Mfg. Co. 51
Given, Wm. M. 6
Glamorgan Pipe & Foundry Co. 50
Golden's Foundry & Mach. Co. 10
Goodsell Packing Co. 51
Gould, F. M. 50
Grant & Williams 35
Greaves, Klusman & Co. †
Green Fuel Economizer Co. 20
Greenwald, I. & E., Co. 16
Gregory Electric Co. 32
Guarantee Electric Co. 35
Gurney Mfg. Co. 10

H

Haines, William S., Co. 4
Hall, Chas. A. 6
Hallam, Wirt W 44
Hambleton & Co. 27
Hammond Iron Works 17
Hanlon, Thos. F. 8
Hanson & Van Winkle Co. 10
Hardie-Tynes Fdy. & Mch. Co. 15
Harrington & King Perf. Co. 4
Harrisburg Fdy. & Mach. Wks. 14
Harrison Safety Boiler Wks. 19
Harry Bros. Co. 49
Hartford Steam Boiler Inspection & Insurance Co. 18
Hartley's Boiler Works 19
Hartranft, Wm. G., Cement Co. 3
Hawley Down-Draft Furnace Co 21
Hay-Budden Mfg. Co. 36
Hazard Mfg. Co. 52
Hazelton Boiler Co. 18
Healy Ice Machine Co. 22
Heartley Machine, Variety Iron & Tool Works 43
Heine Safety Boiler Co. 18
Help Wanted 31
Hench & Dromgold 44
Hendrick Mfg. Co., Ltd. 40
Henning, John, & Son 32
Hensley, Jas. W. 40
Hicks, F. M. 25
Hiertz, Theo., & Son 3
Higgins, John C., & Son 25
High Point Machine Works 16
Hill, Wm. E., & Co. 17
Hill & Griffith Co. 56
Holt, S. L., & Co. 32
Hoopes & Townsend Co. 12
Hornaday, J. P. 30
Howell's Mining & Drill Co. 39
Hughes Specialty Well Drill. Co 6
Hull, Joseph 34
Humboldt Metal Works 21
Hunt, C. W., Co. 28
Hutchinson Bros. *
Huther Bros. †
Hutton Engineering Co. 6
Hyde Bros. & Co. 36

I

Imperial Gas Lamp Co *
Incandescent Electric Light Manipulator Co. 54, 55
India Alkali Works 47
Industrial Water Co. 47
Ingersoll-Sergant Drill Co. 26
Ingoldsby Automatic Car Co. 12
International Boiler Comp'd Co. 19
International Corres. Schools 6
International Power Co 16
International Sprinkler Co. ‡
International Trust Co. 27

J

Jackson Mfg. Co. 2
Jacobs, M. R. 28
Jacobson Machine Mfg. Co. 10
Jacoby, W. F., & Co. 8
Jeffrey Mfg. Co. 38
Jenks, W. H. 55
Jenkins Bros 56
Johns, H. W., Mfg. Co. 7
Johnson, John, & Co. 49
Johnson, W. A 30
Jones, J. B., & Co. 36
Joseph, Isaac, Iron Co. 35

K

Keasbey & Mattison Co. 26
Keeler, E., Co 19
Kelley, Benj. F., & Son 20, 34
Kelley Island Lime & Transport Co. 8
Kelly Foundry & Machine Co. 20
Kelly, O. S., Co 39
Kennedy, Walter 6
Kennicott Water Softener Co. 22
Kentucky Electrical Co. 55
Keystone Eng. & Mach. Wks. 34
Kilbourne & Jacobs Mfg. Co. 2
Kilburn, Lincoln & Co. 46
Kilby Locomotive & Mach. Wks. 35
Kirk, W. W. 35
Kitson Hydro-Carbon Heating & Incandescent Lighting Co. 55
Klauder-Weldon Dye'g Mch. Co. *

L

Landis Tool Co. †
Lane Mfg. Co. 45
Lang, S. Logan 30
Latrobe Steel & Coupler Co. 13
Latrobe Steel Co. *
Lawrence Cement Co. *
Lawrence, L. J. 28
Lederle, Frank 6
Lee Bros. 30
Leffel, James, & Co. 51
Leffler, Chas., & Co. 36
Leonard & McCoy 19
Leschen, A., & Sons Rope Co. 53
Lewis, H. F., & Co., Ltd. 49
Lexow, Theodor 39
Lidgerwood Mfg. Co. 21
Link-Belt Engineering Co. 52
Littleford Bros 21
Lockwood, Greene & Co. 6
Lombard Iron Wks. & Sup. Co. 16
Long & Allstatter Co 37
Loomis & Nyman 50
Lowell Machine Shop 46
Ludlow-Saylor Wire Co. 40
Ludlow Valve Mfg. Co. 23
Lummus' F. H., Sons' Co. 47
Lund, S. T. 34
Lunkenheimer Co. 23
Lykes, John D. 19

M

Macomber & Whyte Rope Co. 53
MacRae, Hugh, & Co 27
Magid, Louis B., & Co 28
Magnolia Metal Co. 26
Main Belting Co. 24
Makepeace, C. R., & Co. 6
Males Co. 35
Mallory, J. D. 34
Marine Iron Works 12
Marion Steam Shovel Co. 2
Maryland Casualty Co. 19
Maryland Cement Co. 8
Maryland Foundry & Mach. Co. 53
Maryland Trust Co. 27
Mason Machine Works 46
Mason Regulator Co. 50
May & Spalding 36
Mayo Knit. Mch. & Needle Co. 46
McAdoo, M. R. 28
McCabe, J. J. 36
McCabe, W. R. 32
McCay Engineering Co. 34
McClave, Brooks & Co. 19
McClave, Hamilton & Rimmer 18
McDonald, A. H. 35
McGowan, John H., & Co. 50
McIntosh, Seymour & Co. 16
McKenna, David †
McKiernan Drill Co. 39
McLanahan-Stone Machine Co. 38
McMichael & Wildman Mfg. Co. 46
McRae, M. W. 6
Means & Fulton Iron Works 20
Mecklenburg Iron Works 39
Meier's, Joseph, Sons 24
Menager, Jas. A. 30
Mengel's Machinery Exchange 34
Mercantile Trust & Deposit Co. 27
Merchant & Co. ‡
Merchants & Farmers' Nat. Bk. 27
Merchants & Miners' Trans. Co. 49
Meyers, The Fred. J., Mfg. Co. 10
M. F. *
Middendorf, J. Wm., & Co. 27
Milburn, Frank P. 6
Miles, Franklin S. 44
Miller Supply Co. 32
Millett Core Oven Co. 26
Milner & Kettig Co. 28
Milton Mfg. Co. 16
Mobile Coal Co. 8
Monitor Steam Generator Mfg. Co 18
Montross Metal Shingle Co. 42
Mooers, H., Co. 34
Morris, Henry G. 4
Morrison & Kindervater 6
Morse Twist Drill & Mch. Co. 12
Morse, Williams & Co. 53
Motiu, DeWitt, & Co. 27
Mueller, H., Mfg. Co 2
Mundt, Chas., & Sons 40
Munson, Charles, Belting Co. 24
Muralo Co. 41
Murphy, John, Co. 56
Murray Iron Works 16
Muzzy Bros. 43
Myers, F. E., & Bro. 50

N

Nanz, B., & Co. 11
Nashville, Chattanooga & St. Louis Railway 30
National Pipe Bending Co. 19
National Roofing & Supply Co. 42
Nat'l Skylight & Construction Co 42
New Atlantic Hotel 49
New England Automatic Weighing Machine Co. 49
Newhall, Henry B. *
N. J. Car Spring & Rub. Co. 24
N. J. Foundry & Mach. Co. 52
N. J. Wire Cloth Co. 10
N. J. Zinc Co. 43
N. Orleans Wood Preserving Wks 44
Newport News Shipbuilding & Dry Dock Co. 16
New Process Raw-Hide Co 10
New York Continental Jewell Filtration Co. 2
New York Equipment Co. 35
Niagara Mach. & Tool Works 36
Nicholson File Co 8
Nicol, Bauer & Foster 6
Niles-Bement-Pond Co. 37
Nordyke & Marmon Co. 2
North American Metaline Co. 10
Northern Electrical Mfg. Co. 7
Norton Emery Wheel Co. 5
Norway Iron and Steel Co. 12
Nuttall, J. 32
Nye & Tredick 47

O

Obermayer, S., Co. 11
Ohio Injector Co. 19
Ohio Pulley Co. 10
Old Dominion Land Co. 56
Olds Motor Works 16
Otto Gas Engine Works 17

P

Pancoast International Ventilator Co. 43
Park Mfg. Co. 51
Parkhurst Bros. & Co. 52
Patterson, Frank L. 34
Paxson J. W., Co. 11
Peacock Iron Works 40
Pechin, T. E. 25
Peck-Hammond Co. 22
Peerless Rubber Mfg. Co. 20
Penberthy Injector Co. 56
Pen-Mar 49
Perry, Nathaniel V 6
Petroleum Iron Works Co. 19
Philadelphia Textile Specialty Machine Co. 47
Phillips, Edward W 16
Phoenix Iron Works Co. 16
Phos. Bronze Smelting Co., Ltd. 12
Pittsburg Meter Co. 56
Polk, A. J., & Son †
Pomona Terra Cotta Co. 50
P. O. Box 316 39
Porter, H. K., Co 13
Poulterer & Co. 34
Powhatan Clay Mfg. Co. 7
Praray, C. A. M., & Co 6
Pratt & Boltwood 6
Pratt & Whitney Co. *
Pratt, N. P., Laboratory 6
Prentiss Tool & Supply Co. 32
Price Machinery Co. 32
Price & Co. 45
Price & Heald 44
Pulsometer Steam Pump Co. 50

Q

Queen City Printing Ink Co. 48

R

Rainier & Williams 34
Rand Drill Co. 39
Ransome & Smith Co 8
Raymond Bros. Impact Pulv. Co. 11
Record Printing House ‡
Reese-Hammond Firebrick Co. 7
Reid, Thorburn 6
Reliance Gauge Column Co. 21
Remington Machine Co. 22
Rhoads, J. E., & Sons 24
Richmond Mica Co. 34
Richmond Stove Co. 11
Richmond Trust & Deposit Co. 27
Ridgway, Craig, Co. 52
Ridgway Dynamo & Engine Co. 55
Roanoke Navigation & Water-Power Co. 30
Robbins, O. A 47
Robertson, Jas., Mfg. Co. 40
Robinson, Geo. A. Contracting Co. 42
Robinson, J. M., & Co. 36
Robinson Machine Co. 21
Robinson, Wm. C., & Son 21
Robinson & Orr 34
Rockwell Engineering Co. 6
Roebling's, John A., Sons Co. 26
Rogers, J. M., Boat, Gage & Drill Wks 39
Root, B. M. 44
Rossendale-Reddaway Belting & Hose Co. 24
Rossiter, MacGovern & Co 32
Ross-Meehan Foundry Co. 12
Royersford Fdy. & Mach. Co. 36
Rubber Tire Co. 9
Rugples-Coles Engineering Co. 8
Ryan, J. J., & Co. 12

S

Sackett, A. J. 38
Safety Car Heating & Light. Co. 4
Saginaw Mfg. Co. 10
Salem Iron Works 45
Salem Machine Works 24
Sanders Mfg. Co. 10
Saunders', D., Sons 11
Saxton, J. C. 32, 35
Scaife, W. B., & Sons 6
Schaefer, W. J., & Co. 5
Schieren, Chas. A., & Co. 24
Schofield's, J. S., Sons Co. 17
Schrieber, L., & Sons Co. *
Schumacher & Boye 34
Scott, Low & Co. 28
Scott & Williams 46
Scranton Cor. & Eme'y Wheel Co. 31
Securities Guaranty Co. 28
Seyfert's, L. F., Sons 32
Shimer, Saml. J., & Sons 44
Shultz Belting Co. 56
Siegrist Lubricator Co. 19
Simmons, John, Co. 51
Simpson, A. Duncan 6
Sinclair, S. H., Co. 2
Situation Wanted 31
Skinner Chuck Co. *
Smethurst & Allen 55
Smidth, F. L., Co. 40
Smith-Courtney Co. 16
Smith, H. B., Machine Co. 44
Smith, Samuel J., & Co 54
Smith, S. Morgan, Co. 51
Smith, Thos. W 34
Smith-Warren Co. 42
Smythe, S. R., Co. 6
Somerville Electric Light Co. 35
Soule Steam Feed Works 44
Southeastern Lime & Cement Co. 8
Southern Abestos Mfg. Co. 22
Southern Engine & Boiler Wks. 18
Southern Iron & Equipment Co. 36
Southern Railway Co. 31
Southern States Trust Co. 27
Southwark Fdy. & Mch. Co. 15
Spartanburg Loom Harness Co. *
Speidel, J. G 52
Speir, W. E 6
Spencer & Hall 8
Sprague Electric Co. 54
Sprout, Waldron & Co. 25
Standard 30
Standard Caster & Wheel Co. 7
Standard Paint Co. 41
Standard Scale & Sup. Co., Ltd. 4
Standard Traction Brake Co. 14
Stanley Electric Mfg. Co. 7
Star Brass Works 42
Starr, B. F., & Co. 25
Steel Rail Supply Co. 36
Steele, J. C., & Sons 41
Sterling Blower & Pipe Mfg. Co. 21
Stevens', H., Sons Co. 56
Stillwell-Bierce & Smith-Vaile Co. 51
Stimpson, E. B., & Son 7
St. Louis Iron & Machine Wks. 17
Stowell Mfg. Co. 42
Struthers, Wells & Co. 17
Stuebner, G. L., Iron Works 9
Sturtevant, B. F., Co. 35
Sturtevant Mill Co. 38
Sullivan Machinery Co. 39
Sweet & Doyle 22
Sydnor Pump & Well Co., Inc. 7

T

Tabor Mfg. Co. 4
Tanite Co. *
Tate, Jones & Co. 53
Taunton Locomotive Mfg. Co. 20
Taylor, James Knox 28
Tennessee Lumber Co. 55
Textile Mill Supply Co. 47
Thacher Belting Hook Co 24
Thompson, T. C., & Bros. 6
Thompson, Son & Co 32
Thomson, Edward H., & Sons 27
Titus, E. E *
Toomey, Frank 32
Torbert & Peckham 35
Tower-Binford Elec. & Mfg. Co. 54
Trask, Spencer, & Co. 27
Trenton Iron Co. 53
Trevor Mfg. Co. 44
Triumph Electric Co. 55
Troy Cold-Water Kalsomine Co. †

U

Union Iron Works Co. *
United Telpherage Co. 53
University School for Boys 9
U. S. Cast Iron Pipe & Fdy. Co. 50
U. S. Mineral Wool Co 42

V

Valk & Murdoch Iron Works 18
Valley Iron Works 16
Vanderbilt & Hopkins 30
Van Noorden, E., Co. 7
Van Winkle, E., Gin & Mch. Wks. 47
Vapor Heating Co †
Vilter Mfg. Co. 16
Virginia Bridge & Iron Co. 6
Vitrified Wheel Co. 31

W

Walker & Elliott 40
Wall, P., Mfg. Supply Co. 11
Walter & Legare 6
Ware, W. R. 34
Warner, Charles, Co. 8
Warren-Burnham Co 34
Warren Chemical & Mfg. Co. 43
Warren-Ehret Co. 43
Washburn, A. H 46
Waters, John A., & Co. 35
Watson, Benjamin 35
Watson, N. A. *
Watson, R. E. 30
Watson-Stillman Co. 47
Weatherford & Hildebrand 6
Weber, F., Co. *
Webster, Warren, & Co. 2
Weir Frog Co. 12
West Pascagoula Creosote Wks. 30
West Pulverizing Machine Co. 40
W. Va. Central & Pittsburg Ry. 30
Westbrooks, J. B., Fdy. & Mch. Co 52
Western Electrical Supply Co. 55
Westinghouse, Church, Kerr & Co 14
Westinghouse Elec. & Mfg. Co. 14
Westinghouse Machine Co. 14
Wetherill, Robert, & Co. 15
Whaley, W. B. Smith, & Co. 6
Wheeler, McMichael & Co 6
Wheeling Board of Trade 30
Whitinsville Spinning Ring Co. 46
Whitman Mfg. Co. *
Whiton, D. E., Machinery Co. 11
Wickes Bros. 35
Wilce, T., Co. 45
Wilcox, D., Mfg. Co. 2
Willebrands, G. W 35
Williams Bros 50
Williams, I. B., & Sons 25
Williams, J. H., & Co. 31
Williams, John L., & Sons 27
Williams, J. R., & Co. 56
Williams, Milton F., & Co. *
Wilmarth & Morman 37
Wilson, H. McK 28
Wilson Laundry Machinery Co. 2
Wisconsin Mchy. Co. 34
Witherow, James P. 6
Wolf, The, Co. 25
Wolf, Fred. W., Co. 22
Wood, R. D., & Co. 50
Woods, T. B., Sons 10
Woolford, G., Wood Tank Mfg. Co 49
Wormer, C. C., Machinery Co. 32
Wright Mfg. Co. 20
Wrightsville Hardware Co. 51

X

X 30
XX 30

Y

York Mchy Co., S. M. 32
York Mfg. Co. 22

Z

Zelnicker, Walter A 35

SPECIAL Advertisements OF GENERAL Interest.

OPPORTUNITIES FOR INVESTORS.

ADVERTISING RATES FOR SPECIAL ADVERTISMENTS:

Inches.	1 time.	2 times.	3 times.	4 times.
1	$ 1.75	$ 3.00	$ 4.25	$ 5.00
2	3.00	5.50	7.50	10.00
3	4.25	7.50	11.75	15.00
4	5.50	10.50	15.00	20.00
5	6.75	13.00	19.00	25.00
6	8.00	15.00	21.50	28.00
¼ page (13 in.)	16.00	30.00	40.00	50.00

Coal, Iron and Timber Lands.

Come to West Virginia.

Why? It has more and a greater variety of undeveloped resources close to Eastern and Western markets than any other State. The WEST VIRGINIA CENTRAL & PITTSBURG RAILWAY penetrates the heart of the virgin timber forests and coal deposits. Cheap fuel, cheap raw material and unsurpassed railway facilities make that territory most desirable for manufacturing industries. For information in regard to timber and coal lands and manufacturing sites address

HOWARD SUTHERLAND,
Gen'l Land Agent, ELKINS, W. VA.

For Sale—From 3000 to 3500 Acres of

TIMBER LAND

situated in Georgia, Orangeburg Co., S. C., near the South Carolina Road. About half of the tract is adapted for planting purposes, cotton, rice, corn, potatoes, sugar cane and tobacco, balance standing timber, within easy reach of Branchville and Bormantown. Apply to
W. D. CONNOR, St. Georges, S. C.
VANDERBILT & HOPKINS, 126 Liberty St., N. Y.

FLORIDA TIMBER.

40,000 acres saw mill timber, average 2,000 feet per acre. Lies along the Seaboard Air Line Railway. Easy logging, low freight rates to Gulf and Atlantic Port. Price $1.25 per acre, includes land, contains considerable cypress.
Send for prospectus.
BROBSTON, FENDIG & CO.,
BRUNSWICK, GA.

FOR SALE.

500,000 Acres of Turpentine and Saw Mill Timber Lands for sale in Florida, in tracts to suit purchaser.
D. T. DOUGHTRY & CO.
JACKSONVILLE, FLA.

FOR SALE.

55 thousand Acres of Well Timbered Land in Cuba, 32 million feet Red Cedar, 12 million Mahajana, 8 million Mahogany.
Well located in good Province. Full detail description will be mailed to any address.
Address **P. O. Box 316, SUFFOLK, VA.**

Timber, Coal and Mineral Lands

FOR SALE.

Developed and Undeveloped. Any size or location. Bargains in Southern Properties. Correspondence solicited.
Samuel Bordenkircher,
76 Hillsdale Avenue, CLEVELAND, OHIO.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.

Water Powers and Mill Sites.

WATER POWERS

FOR SALE.

11,700 H. P. net, delivered electrically, Camden, S. C., where all trunk lines in South. $20.00 per H. P. will buy and develop. H. P. rental asked for will pay 6 per cent. on total investment.
S. LOGAN LANG, Camden, S. C.

ROANOKE NAVIGATION & WATER POWER CO.

Weldon, North Carolina.
LESSORS OF

Water Power and Electric Power.

Unrivalled location for
INDUSTRIAL ENTERPRISES
at Junction of Atlantic Coast Line and Seaboard Air Line Railway Systems.
Steamboat connection with Norfolk, Va.
12 hours' travel from New York City.
Operates Nine Miles of Canals and Electric Power Transmission Plants.

Price for Water Power:
$15.00 Per H. P. Per Year,
24 Hours' Use Daily.
THIS INCLUDES BUILDING SITE.

Electrical Power;
$15.00 PER H. P. PER YEAR,
20 Hours' Daily Use.

OTHER INDUCEMENTS:
Proximity to Raw Material and Market Centres.
Favorable Rates for Manufactured Products.
Free Building Sites.
Low Taxes, Exemptions, etc., etc.
Correspondence Solicited.
JAS. W. WILSON, President.

Magnificent Site for Pulp Mill, &c.
On Seaboard Air Line and river navigable 40 miles for light draft boats into a timber country untouched by railroads. Over 200 horse power available.

To the Manufacturer:

No sites for **Cotton and Woolen Mills** are more attractive or valuable than those to be found on the

Nashville, Chattanooga & St. Louis Railway.

The water powers are superb; coal for fuel convenient and low in price; the cotton fields almost within sight and sound of the water powers, with low rates on cotton from the various cotton markets to the mill sites (ask for tariffs) and the labor abundant, efficient and cheap. No more healthful region exists in the United States than that penetrated by the system of the Nashville, Chattanooga & St. Louis Railway. The water powers occur on numerous streams on the Huntsville & Sparta Division and on the Western & Atlantic Railroad, and range in dynamic force from 500 to 12,000 horse powers.
The prices of steam coal at the mills vary from $1.00 to $1.75 per ton. Labor is 25 per ct. cheaper than in the rigorous climate of the North, and finished goods may be transported to all markets, domestic and foreign, at rates as favorable as those accorded to other manufacturing districts in the United States. For descriptive pamphlets, maps, rates, etc., call on or address
J. B. KILLEBREW,
Industrial and Immigration Agent,
NASHVILLE, TENN.

Miscellaneous Properties and Investment Opportunities.

West Pascagoula Creosote Works,

WEST PASCAGOULA, MISS.

Situated on Pascagoula Bay and on the line of the Louisville & Nashville Railroad.
These works have been in operation for more than twenty years, were recently entirely rebuilt and enlarged, and are now prepared to execute all orders for Creosoted Piles and Timber thoroughly impregnated with dead oil of coal tar.
New cylinders 115 feet long. Capacity one million feet per month. Address
S. W. LABROT,
Supt. West Pascagoula Creosote Works,
WEST PASCAGOULA, MISS.

FOR SALE.

A RUNNING PLANT,

consisting of Planing Mill, Sash, Door and Blind Factory, located in a thriving city on Jersey Coast within short distance of New York. Plenty of business can be had, but offered for sale in order to settle an estate.
VANDERBILT & HOPKINS,
126 Liberty St., New York City.

WANTED.

A middle aged A1 business man as **Manager of a Large Fertilizing Plant about to be erected in the South.** Must have had experience in the manufacture of fertilizer and fully understand the manufacturing of fertilizer, and have the cash to invest $1000 in the common stock of the company, and be able to give a guarantee indemnity bond in the sum of $20,000, which the company will pay for. Salary for the first year $5000. Give age and references. Enclose stamp for reply.
Address **STANDARD,**
Commercial Club Building, 21st St.,
BIRMINGHAM, ALA.

WANTED TO BORROW.

$60 to $75,000 upon **200** million feet of **Standing Long Leaf Yellow Pine Timber in Florida,** by a responsible milling concern. Now in successful operation. Amount needed to equip a larger and more modern plant. Investigation courted. Address
X. care Mfrs. Record, Baltimore.

J. P. HORNADAY,
Financial Agent & Corporation Counsel.
Southern Timber and Mineral Lands.
Industrial Properties & Investments.
Corporations Organized and Financed.
1007-8 Union Trust Bldg., Cincinnati, O.

SOUTHERN INVESTMENTS.

Additional Capital Supplied.
Stock Companies Organized and Attractive Properties Financed.
Make a Specialty of Mining, Timber and Industrial Propositions.
Bank references furnished.
R. E. WATSON, Austell Building. ATLANTA, GA.

FOR SALE.

BOILER WORKS,

fully equipped with all modern machinery. Business established. Location perfect. Good reasons for selling out at once.
Only those meaning business need apply.
LEE BROTHERS,
MEMPHIS, TENN.

FOR SALE.

An Industrial Plant in Tennessee.

Saw Mill, Planing Mill, Flour and Feed Mill, Wagon Shop, Blacksmith Shop, General Store in full stock. Fine water power. Good river for rafting logs. Also a separate property. Stumpage of 3500 acres poplar, white oak and other timbers. A bargain if sold quick.
W. A. JOHNSON, McMinnville, Tenn.

The manufacturers of a line of

Modern Machine TOOLS

wish to establish a new factory large enough to take care of their rapidly increasing trade in a city from ten to seventy-five thousand inhabitants. Two hundred and fifty men can be employed, nearly all high-grade mechanics. Correspondence invited. Address XX, Manufacturers' Record.

Valuable Grain and Grazing Farm

FOR SALE.

in Mason County, West Virginia. 1125 acres of land; 500 of Ohio River Bottom and 625 of Hill land. In fine condition. Most desirable location. Ideal place for a home. For particulars, address
JAMES B. MENAGER,
POINT PLEASANT, MASON COUNTY, W. VA.

If you want to sell Southern property or attract Northern and Western settlers, advertise in the *Southern Farm* magazine, published by the Manufacturers' Record Publishing Co., Baltimore, Md.

Towns Wanting Factories.

Would

POWER

At a fuel cost of

$5.00 Per Year

per ten-hour horse-power, be any attraction to you?

Wheeling, West Va.

can do even better than that. For particulars, ask the

Wheeling Board of Trade,

S. A. THOMPSON, Sec'y.

WHAT IS YOUR BUSINESS ARE YOU PROFITABLY LOCATED WOULD YOU DO BETTER ?

Then let us tell you about one of the most attractive and growing towns of the South,

"Cedartown, Ga."

Situated in the healthy "Piedmont Region," offers unexcelled opportunities for profitable business openings of all sorts, viz. STORES, COTTON AND KNITTING MILLS, STOVE WORKS, MACHINE SHOPS, BASKET FACTORIES, AGRICULTURAL IMPLEMENT WORKS, ETC., ETC.

CEDARTOWN has Water Works, Electric Light Plant and Underground Sewerage, Churches of All Denominations and Good Public Schools. Write for further information regarding "CEDARTOWN'S" industrial development.

CEDARTOWN CO., 119 S. 4th Street, PHILADELPHIA, PA.

Woodworking PLANTS WANTED

At a number of points in the South along the line of the

Southern Railway.

There are good openings for Woodworking Plants, such as FURNITURE FACTORIES, PLANING MILLS, SPOKE AND HANDLE FACTORIES, or other plants using pine or hardwoods. Local people will invest from $6,000 to $8,000 with an experienced man who will himself invest a like amount or more and do a legitimate business. For information write to

M. V. RICHARDS,

Land & Industrial Agent, Washington, D. C.

SOUTHERN RAILWAY.

TO

Real Estate Agents:

Do you own a farm? The question is pertinent because a great many Real Estate Agents even in the cities, and more largely of course in the towns, are owners of farm property. In many cases it is an incumbrance instead of a profitable asset. Or even if it yields a revenue this might be made larger. If you have any such interest as this in farming, stock raising, fruit growing, or any agricultural pursuit, don't you think you might find some valuable and helpful suggestions and ideas in a high-class periodical of Southern agriculture, such as the Southern Farm Magazine? It is only a dollar a year. Don't you want it? Published by Manufacturers' Record Publishing Co., Baltimore.

"Machine" Wrenches

are the "extra heavy ones" among a number of especially designed Drop-forged Wrenches for Machine Tool users and builders They are made to serve as a hammer, often. Design, quality and price rank with that of other tools and parts shown in July, 1901, "Wrench Book G."

J. H. WILLIAMS & CO., BROOKLYN, N. Y.

Drop-forgings Only.

Signs of Good Sand Paper;

THE BULL AND BEAR.

In Use More Than Twenty-Five Years.

Emery, Garnet and Flint Paper and Emery Cloth.

GLUE, CURLED HAIR AND HAIR FELTING.

BAEDER, ADAMSON & CO., 730 Market Street, Philadelphia. 67 Beekman Street, New York. 143 Milk Street, Boston. 182 Lake Street, Chicago.

Emery Wheels

Will Run Wet or Dry.

CORUNDUM WHEELS. Polishers and Machinists' Supplies, Rub Stones, Emery Wheel Machinery, and Diamond Tools. Vitrified Wheel Co., Westfield, Mass.

CORUNDUM and EMERY WHEELS

SEND FOR CATALOG.

SCRANTON CORUNDUM & EMERY WHEEL CO. Box 801, SCRANTON, PA.

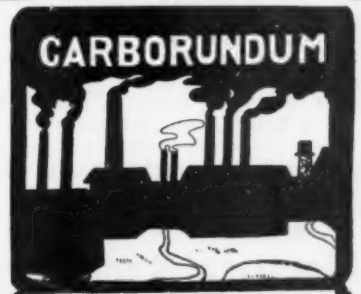
Abrasive Emery Wheels Do Quick Work and Do It Right.

A trial will prove it.

The Abrasive Material Co.

PHILADELPHIA, PA.

New Orleans Agents, C. T. PATTERSON CO.



Five Years Ago

Carborundum wheels for general machine shop use were first put on the market—
Today they are used in almost every large machine shop in the country—
There's a reason for it—
a new product doesn't make progress like that by chance.

Write for the Carborundum booklet telling all about it.

The Carborundum Company, Niagara Falls, N. Y.

HELP WANTED.

Advertisements under this head will be inserted at the rate of one cent a word for each insertion.

WANTED.—A Superintendent for our Rock Salt Mines at Weeks Island, La. Must be familiar with rock salt business and capable of designing a rock salt mill. Write, giving reference and state experience. MYLES SALT CO., Ltd., New Orleans, La.

WANTED.—A Foreman for Sash and Door Factory; must be able to read blue prints. Also wanted man to run a moulder; must be quick and active. Address **Box 4**, Blackstone, Va.

SITUATIONS WANTED.

Advertisements under this head will be inserted at the rate of one cent a word for each insertion.

WANTED.—By overseer of weaving, plain or fancy. Experienced designer. Address OVERSEER, care Mfrs. Record.

ANALYTICAL CHEMIST AND ASSAYER of wide experience in engineering, chemistry and assaying, is open for position. Address ASSAY, care Mfrs. Record.

If you are thinking of enlarging your mill, factory or mine, or of purchasing machinery of any kind, send the Manufacturers' Record a postal card giving the character of the machinery needed.

Bargains in— Machinery FOR IMMEDIATE DELIVERY.

Woodworking Machines

1 26" Woods Double Surfacer.
1 7" four-side Moulder.
1 Houston Upright Mortiser.
1 34" Clement Band Saw.
1 Colladay Jig Saw.
2 Single Spindle Shapers.
2 Wood Lathes.
4 Saw Tables, rip and cross cut.
1 Hand Matcher.

ATTRACTIVE PRICES.

THOMAS P. CONARD,
119 S. Fourth St. PHILADELPHIA, PA.

FOR SALE.

SECOND-HAND WOOD-WORKING MACHINERY.

14" Keystone Matcher.
14" Preble Matcher.
24x6 Weatherby, Rug & Richardson; 24x6 Hoyt Bros.; 8" S. A. Wood Fast Feed Matcher.
27x12 Endless Bed Surfacer, S. A. Woods.
24x6 J. A. Fay Incline Bed Cabinet.
12" Inside Woods Moulder.
10, 8, 6 and 4" Outside Moulders, all makes.
Greenlee Self Feed Saw, Saw Tables.
38 Rawley & Hermance Re-saw.
24 H. B. Smith Re-saw.
Tenoners, Pony Planers, Mortisers, Jig Saws, Sanders, Gasoline Engines, Fans, Jointers, Lathes.

Blue prints of all machines will be sent upon application. Write and get our prices before buying.

PRICE MACHINERY CO.
507 Great Northern Bldg. CHICAGO, ILL.

STRUCTURAL IRON WORK

For Immediate Delivery.

EYE BEAMS, from 3 in. to 20 in.
CHANNELS, from 1¾ in. to 15 in.
ANGLES, 1 in. to 6 in.
FLATS & BARS up to 20 in. wide.
ROOF TRUSSES, GIRDERS, COLUMNS, and **BRIDGES** designed and built.

Bridge Railings a Specialty.

BELMONT IRON WORKS
PHILADELPHIA, PA.

SECOND HAND

Electrical Machinery

BOUGHT AND SOLD.

Correspondence solicited.

THOMPSON, SON & CO.
107 Liberty Street, NEW YORK.

High Speed Engine Bargains

No.	H. P.	Maker	Cylinders
1	200	Buckeye	16½ x 27
1	90	Atlas C.	14 x 20
1	75	Westinghouse	12 x 11
1	65	Beck-Taylor	10½ x 12
1	60	Ball	10 x 12
1	40	A. & S.	8½ x 12
1	30	Atlas C.	9 x 14

CAMP ENGINEERING CO., 47 W. Lake St., Chicago, Ill

SECOND-HAND.

We have a number of Dynamos and Motors, which we have displaced with larger units. These are all overhauled and guaranteed to be in good working order before shipping. The prices are very moderate indeed.

Your correspondence is solicited.

THE W. C. BENBOW CO.
Manufacturers' Agent. COLUMBUS, OHIO.

FOR SALE.

Second-hand Corliss Engines,

100, 150, 200, 350, 500 and 800 H. P. Boilers, all sizes. Steam Pumps in great variety. Send for bargain list of second-hand machinery.

S. L. HOLT & CO.
67 Sudbury Street, BOSTON, MASS.

FOR QUICK SALE.

A nine-inch four-side Horizontal Moulder,

in good running condition. Will be sold at a reduction before removal. Address

L. F. SEYFERT'S SONS,
437-441 N. Third St., PHILADELPHIA, PA

FOR SALE.

3 80-horse power Return Tubular Boilers

in good condition.

W. R. McCABE, West Norfolk, Va.

SECOND-HAND

DYNAMOS AND MOTORS EXCLUSIVELY

Largest Stock in the World.

Send for our **Monthly Bargain Sheet,** with lowest net cash prices on machines in stock—Everything Fully Guaranteed. Capital, $100,000.00 Paid up.

GREGORY ELECTRIC CO.
54, 56, 58, 60, 62 S. Clinton St., CHICAGO.

Second-hand Machinery.

LATHES.

12 and 20' triple-geared pit, A1.
96x14 Wilmarth, triple-geared.
60x20 Wilmarth, triple-geared.
46-64x30 Wilmarth, double head.
48x14 Fitchburg.
36x18 Betts, double-geared compound.
32x10 Draper, compound, A1.
30x23 D. W. Pond, C. R. & P. C. F., A1.
30x10 Draper, C. R. & P. C. F.
27x12 Draper, C. R. & P. C. F.
27x8 ditto.
26x12 Wright, C. R. & chuck.
23x8 Putnam, R. & F.
20x10 Cincinnati, C. R., A1.
20x7 Draper, C. R. & P. C. F.
19x11 Lodge & Davis, C. R. and taper.
18x8 Draper, C. R. & P. C. F.
17x8 Prentiss, C. R. & P. C. F.
14x6 Le Blond, plain turning.
14x6 Prentiss, R. & F.

Also large assortment of fox monitors, speed and turrent lathes.

PLANERS.

61x64x23 Hepworth. 41x25x16 Whitcomb.
48x36x12 New Haven. 24x24x6 Whitcomb.
24x24x6 Flather.
24x24x8 Pratt & Whitney.
18x16x3'6 Putnam.

MISCELLANEOUS.

50x12 Nicholson & Waterman horizontal boring machine, fine.
60" Pond vert. boring and turning mill.
48" Bickford ditto, fine.
100-lb. Niles steam hammer.
1400 and 1700-lb. Merrill drop hammers, fine.
400, 800, 1000 and 2200-lb. ditto.
Beaman & Smith vert. spindle milling mch.
No. 6 Brainard Lincoln type miller.
No. 15 Garvin plain miller, B. G.
No. 1 Brown & Sharpe univer., without arm.
No. 23 Brown & Sharpe plain, 49" table feed.
2 No. 2 Becker vert. millers, with rotaries.
11" Lowell slotter.
40" Michel sliding head power feed drill, B. G., P. F.
25" Gould & Eberhardt ditto, fine.
60" Keystone radial.
28" South Bend drill, B. G. & P. F., fine.
14" Prentiss crank shaper, A1.
26" Smith & Mills crank.
28" Smith & Mills shifting belt.
No. 2 and No. 3 Landis univ. grinders.
27x18 Springfield surface grinder.
Nos. 0, 1 & 2 P. & W. screw machs., wire feed.
No. 1 Colburn keyseater.
Ideal twist drill grinder.
19'6 Swamscot plate planer.
8'3 power bending rolls.

Also large assortment of other tools. Send for second-hand list.

PRENTISS TOOL & SUPPLY CO.,
115 Liberty St., New York, N. Y.
Buffalo Office, Block 36 Machinery Hall, Pan-American Exposition.
Boston Office, 200 Franklin St.

Good Second-Hand Machinery.

One 14x42 Harris Corliss Engine.
One 23x48 Corliss Engine, Geo. Corliss make.
One 14x28 Naylor Corliss Engine.
One 16x20 Horizontal Engine, link motion.
Three 44-in. Tolhurst Belt Whizzers.
One 40-in. Tolhurst Whizzer with Engine, new.
Two 42 in Dieneit & Eisenhardt Whizzers, with Engines.
20, 26, 30-in Belt Whizzers.
One 36-in. Weston Belt Whizzer, nearly new.
Large Lot Lathes. Drill Presses, Pumps, Power-Presses. Drop-Presses, Foot-Presses, Evan's Screw-Presses, Wood-Working Machinery.

J. NUTTALL,
1723 N. 5th Street, Philadelphia, Pa.

Largest Assortment. Immediate Delivery.

Send for Catalogue.

1 30"x60" Greene Engine.
1 28"x48" Hamilton left-hand Corliss Engine.
1 26"x48" Greene Engine.
1 16½"—32"x36" Fitchburg Cross Compound.
1 14"—28"x28" Cross Compound Fitchburg.
1 13"—20"x16" McEwan Tandem Comp. Engine.
2 17"x30" Williams Automatic Engines.
1 16"x24" Beck Automatic Engine.
2 15½"x15" Armington & Sims Engines.
1 15"x30" Buckeye Automatic Engine.
1 14"x15" Ideal Engine.
1 12"x12" Armington & Sims Engine.
1 10" - 18"x12" Ball Tandem Compound Engine.
14 Water Tube Boilers, 165 to 200 lbs. steam pres.
22 Horizontal Tubular Boilers.
Several full Railway Equipments.

Large stock of Machine Tools. Let me know your wants.

FRANK TOOMEY,
127-131 N. Third Street, PHILADELPHIA, PA.
Long Distance Telephone 261-262.

FOR SALE.

2 Band Saw Mills, 1 Brick Plant, 1 Endless Rope Mine Haulage Plant, 4 10-ton Shay Geared Locomotives, 18 standard gauge Flat Cars, Boilers, Engines, Rail and Equipment.

WANTED—Relay Rail, Second-Hand Equipment, Locomotives, Cars, Etc.

THE MILLER SUPPLY CO.,
Huntington, W. Va.

STEAM ENGINES.

1 20" and 36"x48" Tandem **Hamilton** Corliss, wheel 22'x56" face.
1 36x72 Wheelock.
1 29x72 Wheelock.
2 30x60 Harris Corliss right and left hand wheels, 58" face by 20 ft. diameter.
1 24"x48" Bates Corliss.
1 20"x48" Geo. H. Corliss.
1 10"x24" Harris Corliss.
1 16½ in.x25 in.x15 in. cross compound Armington & Sims.
3 16 in. and 27 in.x16 in. Westinghouse compound.
2 13"x12" Erie Ball.
2 12"x12" Ball automatic.
2 13 in.x14 in. Watertown automatic.
1 14 in.x13 in. Armington & Sims automatic.
1 15½ in.x16 in. New York safety automatic.
3 15½ in.x15 in. Armington & Sims automatic.
2 16 in.x16 in. Ball automatic.
1 18½x18 in. Ideal automatic.

BOILERS.

2 375 H. P. Sterling water tubes for 150 lbs.
2 200 H. P. National water tubes for 125 lbs.
2 175 H. P. Sterling water tubes.
3 66"x16' Return Tubulars.
2 500 H. P. Hazelton boilers.

CONDENSERS.

1 600 H. P. Snow condenser.
3 325 H. P. Davidson condensers.

Railway Generators.

4 300 K. W. M. P. 4, General Electric.
3 100 K. W. M. P. 4, General Electric.
2 111 K. W. M. P. 4, Westinghouse.
4 60 K. W. Edison bi-polar.

MOTORS.

110, 220, 500-volt motors, from 1 H. P. to 200 H. P.

ALSO

ALTERNATORS,
ARC DYNAMOS,
LAMPS, STREET-CAR, ETC.

ROSSITER, MacGOVERN & CO.

Electrical and Steam Machinery,

141 Broadway, N. Y. Factory, Jersey City, N. J.

SEND FOR NEW CATALOG.

Second-Hand Machinery.

3 13x5 Blaisdell lathes, elevating rest.
5 13x6 Blaisdell lathes, elevating rest.
1 14x5 Blaisdell lathe, elevating rest.
1 14x6 Blaisdell lathe, elevating rest.
1 14x6 Ames lathe, elevating rest.
3 14x6 Flather lathes, plain rest.
1 14x8 Putnam lathe.
1 15x6 Prentice lathe, compound rest.
6 15x6 Blaisdell lathes, elevating rest.
1 20x8 Putnam lathe, compound rest.
1 22x9 New Haven lathe, compound rest.
1 30x30x10 Putnam planer.
1 36x36x10 Wilson planer, two heads.
1 36x36x16 Hughes & Phillips.
1 15" Smith & Mills shaper.
1 26" Lodge & Davis shaper.
4 20" Barnes rd. base, power-feed drills.
1 25" Barnes back-geared, power-feed drill.
1 26" Prentice back-geared, power-feed drill.
1 36" Snyder back-geared, power-feed drill, geared revolving table.
1 40" New Haven back-geared, power-feed drill.
1 No. 12 Brown & Sharpe miller.
4 No. 3½ Garvin plain, back-geared millers.
1 No. 15 Garvin plain, back-geared miller.
1 five-foot Niles vertical boring mill, 1 head.
1 Alligator shear, capacity 1¼ round.

THE S. M. YORK MCHY. CO.
CLEVELAND, OHIO.

READ THIS!

If you are in the market for a second-hand Boiler and Engine, Steam Pump, Feed Water Heater, Steam Trap, Dynamos, second-hand Belting, Pulleys, Hangers and Shafting, second-hand Steam Pipe, any size or quantity; Wrought Iron Tanks, Smoke Stacks of any kind, kindly communicate with us, as we are in a position to fit you out, and will guarantee perfect satisfaction or refund the money and bear all expenses

JOHN HENNING & SON,
1016-20 East Susquehanna Ave., Philadelphia, Pa.

FOR SALE.—Engine, 12x16, $200 Three Traction Engines, 10 and 12-horse, $300 each. 10 and 12-horse Portable on wheels, $200 each. Engine Lathe 20" swing, $150. 16" Speed Lathe, Pratt & Whitney, $60. Pratt & Whitney Drill Press, $15. Five Boilers, 56"x18', 20 flues 6", $300 each. Upright Boilers, Engines all sizes. Double Saw Mill, Brownell make, 36' carriage, 3 head blocks, complete, $350. 35 Engines and Boilers, from 6 to 100-horse, at buyers' prices. D. L. CASEY MACHINE CO., Springfield, Ohio.

MACHINERY.

BOILERS—HORIZONTAL.

(Second-hand.)

No. B-97—36"x8', 25 3" tubes. No. B-106—50"x14', 41 4" tubes. No. B-96½—30"x8', 20 3" tubes. No. B-99—40"x10', 32 3" tubes. No. B-105—48"x14', 47 3" tubes. No. B-109—54"x15', 64 3' tubes. No. B-112—60"x12', 46 3½" & 2 15" tubes. No. B-116—60"x6', 28 4½" tubes (5). No. B-125—72"x5½', 61 4" tubes. No. B-102—60"x12', 70 3½" tubes. No. B-100—44"x10', 38 3" tubes. No. B-113—60"x15', 52 4" tubes. No. B-114—60"x16', 54 4" tubes. No. B-104—48"x12', 54 3" tubes. No B-98—40"x10', 32 3" tubes. No. B-96—54"x12', 71 3" tubes. No. B-99½—40"x10' 4", 34 3" tubes.

BOILERS—VERTICAL.

(Second-hand.)

No. B-157—42"x96", 109 2" tubes, submerged. No. B-148—30"x5', 42 2"x36" tubes. No. B-84—36"x8', 68 2"x5' 8" tubes. No. B-149—28"x5', 37 2" x2' 11" tubes. No. B-162—28"x5', 37 2"x37" tubes. No. B-151—30"x6', 55 2"x2' 3" tubes, submerged. No. B-150—30"x80", 50 2"x38" tubes, submerged. No. B-160—30"x6' 6", 37 2"x4 6" tubes.

(New.)

No. B-144—24"x6', 24 2"x49" tubes.

PORTABLE BOILERS.

(Second-hand.)

No. B-131—15 H. P., 24 3"x6' tubes. No. B-133—18 H. P., 28 3"x5' tubes. All second-hand, in good working order.

ENGINES—HORIZONTAL.

(Second-hand.)

No. B-1—10"x16". No. B-6—7"x10". No. B-8—7½"x10". No. B-22—9"x18". No. B-27—13"x18". No. B-28—11"x16". No. B-29—7¾"x14". No. B-37—12"x20". No. B-40—12"x15". No. B-44—14"x20". No. B-45—5"x6". No. B-46—18"x27", four-valve. No. B-47—4"x8". No. B-2—12"x20". No. B-12—6½"x12". No. B-17—8"x12". No. B-20—10"x12". No. B-16—6"x10". No. B-7—6"x12". No. B-11—8"x12". No. B-21—12"x24". No. B-39—14"x24". No B-41—7"x10".

(New.)

No. B-4—6"x8". No. B-9—7½"x7½". No. B-13—8"x12". No. B-14—8"x10". No. B-23—11"x14" (2). No. B-36—9"x12". No. B-15—10"x14". No. B-31—10"x12". No. B-18—10"x15" (2). No. B-10—8"x10".

ENGINES—VERTICAL.

(Second-hand.)

No. B-51—4"x5". No. B-52—3"x5". No. B-53—4¾' x7". No. B-57—5"x7'. No. B-58—5"x6". No. B-59—8½"x5½". No. B 61—5 13-16"x3". No. B-67—8"x8". No. B-68—9"x9" (double). No. B-70—9"x9". No. B-64—6"x6".

(New.)

No. B-50—3½"x3½". No. B-54—4½"x5½". No. B-55—6"x6". No. B-56—5"x5". No. B-65—7"x7". No. B-49—10"x10". Second-hand engines in good order, and all equipped with usual fixtures.

ENGINES—GASOLINE.

(New)

No. B-89—7 H. P. No. B-90—6 H. P.

AIR COMPRESSORS.

(Second-hand)

No. B-501—5"x5". No. B-504—9½"x9½"x10". No. B-505—9"x15½"x12'. No. B-507—water air compressors (3). No B-508—water air compressors (2). No. B-509—water air compressors (2). No. B-510—2¾"x6½" (double). No. B-500—8"x16"x12". No. B-502—6½"x8½"x6". All in good order.

Write us for any machinery wanted, or if you wish to exchange or sell. To close out the above quickly will make specially low prices for prompt cash.

C. C. Wormer Machinery Co.

24-40 Shelby Street,
DETROIT, MICH.

BARGAINS.

14-in.x6-ft. Engine Lathe, C. Rest and Taper, Davis.
15-in.x6-ft. Eng. Lathe, Porter.
15-in.x6-ft. " " Goddard.
16-in.x8-ft. " " Davis.
18-in.x8-ft. " " Silk-Anderson.
20-in.x10-ft. " " " "
20-in.x10-ft. " " Blaisdell.
20-in.x10-ft. " " Fifield.
20-in. B. G. Drill, Hoefer.
25-in. B. G. & S. F. Drill, Hoefer.
16-in. Crank Shaper, Ohio M. T. Co.
36x8-ft. Planer, 2 hds., " " "
3 Spindle Sigourney Drill.
No. 36 Niagara Press.
90-in. Cincinnati Radial.
Sensitive Drills, Screw Machines, Presses, Grinders, Etc.

If you wish to buy or sell, please let me know. Can give bargains in New and Second-Hand Machines at all times for immediate shipment. GEO. E. AFFLECK,
109 Liberty St., N. Y.

PROMPT DELIVERY.

1 60"x20' Engine Lathe.
1 60"x60"x20' Planer, 2 heads.
2 24"x48" Wheelock Engines.
2 80 H. P. Ball Engine.
1 Dunham 1½" Nut Machine.
1 Hot Nut Machine, 1".

GEO. H. BOWLER,
507-508 Williamson Bldg. CLEVELAND, O.

---

2 Osgood Dredges

FOR SALE.

Hull 70x17x6 ft. with 6x29 ft. pontoons. 1¼ Yard Dipper, Steel Boom, 45 ft.

J. C. SAXTON,
18 Broadway, NEW YORK.

Machinery and Supply Bargains.

We are easily the representative machinery house of America. Our stock is the most extensive to be found anywhere.

All rebuilt motive power that leaves our establishment is in absolutely perfect condition. Our extensive repair shops are replete with every modern facility for correctly turning out second-hand machinery, as good as new for further use.

The Following Items are Offered Subject to Prior Sale:

No. ENGINES.

104. 2 16x24 slide valve.
109. 2 8x12 side crank.
111. 8x16 right hand, side crank.
112. 8x16 left hand, side crank.
114. 10x14 link motion, right hand.
115. Vertical incased 4x10x14.
116. Cross compound 3x16.
117. 5½x12 right hand, side crank.
118. 9x14 left hand, box bed.
119. 8½x12 center crank.
120. 9x10 side crank.
121. 8x12 center crank, box bed.
122. 6½x12 left hand, side crank.
123. 5x10 right hand, side crank.
001. 6x8x12 center crank, reversible "Tift."
002. 7x9x12 center crank, reversible "Tift."
143. Davy safety engine and boiler, compound, 8x8.
003. 12x20x12 Westinghouse.
150. 5x7 Erie City, center crank.
151. 6x8 Erie City, center crank.
152. 5x7 center crank.
153. 6x8 center crank.
154. 7x10 side crank.
155. 12x24 center crank, heavy bed.
156. 7x12 left hand, slide valve.
157. 9x12 left hand, slide valve.
162. 12x16 left hand and slide valve, extra heavy bed.
163. Armington & Sims cross compound 13¼x20½x15.
170. 12 H. P. Kimball automatic.
171. 5 H. P. low pressure.
172. 3 slide Triumph nickel-plated, 20 H. P.
173. 13¼x34.
190. 15 H. P. Kimball automatic.
192. New York Safety 11x12.
206. 14x24 box bed, slide valve, side crank, right hand.
207. 8x18 right hand, side crank.
208. 12x24 right hand, side crank.
210. 11x10 Westinghouse.
212. 11x24 left hand, slide valve.
213. 12x24 slide valve, right hand.
214. 8x7 Westinghouse "Junior."
216. 12x16 box bed, right hand.
217. 15x16 Ball automatic, center crank.
219. 11x20x14 McEwen tandem compound.
047. 22x60 Corliss.
062. 11x20x20 Rice automatic.
060. 13x34 Putnam Corliss.
075. 20x20 Poppet valve.
076. 18x26 Nicol-Burr.
0297. 8x10 Taylor-Beck automatic.
058. 500 H. P. Williams automatic.
0313. 18x32 Nordburg.
0314. 14x18 Erie City side crank.
0318. 13x34 Fitchburg Corliss.
059. 25 brand new Climax aut., from 5 to 25 H. P.
0192. New York Safety, 14x12.
0193. 12x12 Armington & Sims.

No. BOILERS.

666. 54x8 vertical Heine water-tube boiler.
664. 48x12 tubular, no dome.
469. 4 54x15, no dome.
004. 175 H. P. Heine water tube.
005. 120 H. P. Sterling water tube.
006. Water boiler, no dome, 54x14, tubular.
675. 48x12 tubular, no dome.
676. 60x12 vertical fire box.
681. 66x12 vertical fire box.
686. 66x16 tubular.
688. 66x18 tubular.
695. 48x10 vertical fire box.
702. 48x10 vertical fire box.
704. 60x16, no dome, tubular.
708. 66x14 tubular.
711. Marion fire box, 15 H. P.
716. 4 72x20 tubular, no dome.
719. 100 H. P. internally fired.
580. 15 H. P. water-tube marine boiler.
580. 20 H. P. water-tube marine boiler.
007. 1 80 H. P. locomotive fire-box boiler.
008. 1 100 H. P. locomotive fire-box boiler.
009. 50 vertical, from 2 to 20 H. P.
010. 20 locomotive fire-box boilers, from 10 to 40 H. P.

No. PUMPS.

011. Worthington compound duplex, 10x16 by 10¼x10.
012. Worthington compound duplex, 18x14 by 8¼x10.
065. 7 deep-well pumps.

100 pumps, single, duplex and triplex, belt driven and centrifugal.

Write for our list of pumps; it's a very complete one.

No. GASOLINE ENGINES.

013. 2 50 H. P. Ottos.
10 ½ horse-power.
12 2 horse-power.
5 3 horse-power.
6 4 horse-power.
4 5 horse-power.
1 8 horse-power.
1 10 horse-power.
1 20 horse-power.
2 25 horse-power.
051. From 3 to 20 H. P. brand new Dayton horizontal.

No. AIR COMPRESSORS.

064. 25 assorted size air compressors.

OUR COMPLETE LIST ON APPLICATION.

No. HEATERS.

014. Baragwanath 76 H. P., brass tubes.
015. Smith-Vaile No. 1.
607. 16 inch diameter, 10 feet high.
608. Excelsior 20 inch diameter, 7 feet high.
609. Pressure heater 18 inch by 10 feet.
610. Pressure heater 14x30 inches high.
613. Pressure heater 20x3.
615. Pressure heater 12 inch diameter, 4½ feet high.
621. Excelsior heater 48 inch high by 18 inch diameter.
522. 24x12 brass tubes, 400 H. P.
561. 18x4½.
562. Baragwanath 4 inch diameter, 4½ feet.
564. National, copper flues, 300 H. P.
568. 15x4½.
695. Excelsior heater 21x4½ ft.
571. Baragwanath 75 H. P.
575. 16 inch diameter, 6 feet high, automatic regulator.
577. Stilwell-Bierce & Smith-Vaile 48 inch by 9 feet.

No. TANKS.

614. 30 inch diameter x 12 inch.
490. 30 inch diameter x 42 inch.
508. 30 inch diameter x 5 feet.
509. 30 inch diameter x 54 inch.
510. 48 inch diameter x 7½ feet.
491. 42 inch diameter x 12 feet.
494. 42 inch diameter x 5 feet.
495. 48 inch diameter x 7½ feet.
496. 48 inch diameter x 8 feet.
500. 36 inch diameter x 5 feet.
287. 36 inch diameter, 10 feet long.
591. Square tank 36x21x18.

This list represents about one-tenth the number of tanks we have in stock. **Write us your wants.**

No. HOISTS.

016. Standard-gauge locomotive traveling crane, with boiler, self-propelling, 10-ton capacity.
017. Locomotive traveling crane, 5-ton capacity.
018. Double cylinder 8x14, 3 drum.
019. 10x16 double cylinder double drum Mundy.
020. 11x18 double cylinder double drum 3x8¼x12 Mundy, Webster, Camp & Lane.
021. 2 locomotive fire box, with single drum, single cylinder, hoist attached.
022. Marion steam shovel complete.
023. Single hoisting engine and boiler, Mundy, on wheels, single drum, single cylinder.
024. 2 stationary hoisting engines, single cylinder, single drum.
025. Electric hoist, direct-connected.
026. 20 brand new hoists of various sizes.
027. Double cylinder, single drum electric hoist.

No. MISCELLANEOUS.

165. One 8-inch shaft.
028. 20 feet of 5 3-16 inch.
029. 80 feet of 4 1-10 inch.
030. 2000 feet of 1¼-inch wire cable.
031. 500 feet of 2¼-inch cable.
032. 1000 feet of 2¼-inch cable.
033. 1000 feet of 1¼-inch galvanized guy rope.
594. Flywheel, solid rim, 10 inch. diameter, 10 inch bore, rim 9 inch face.
034. 2 "A" shaped house derricks.
505. 1 round iron kettle 48 inch diameter.
506. 1 steam-jacket kettle 34 inch diameter.
507. 1 steam-jacket kettle 54 inch diameter, 5 feet deep.
512. 1 jacket kettle 54 inch diameter, 4 feet deep.
513. 1 round jacket 58 inch diameter, 48 inch deep.
035. 2 chemical fire engines.
036. 2 Lindgreen chemical fire engines.
037. 300 gate, globe and angle valves, from 10 to 24 inches, screwed and flanged. **Write us.**

2 mechanical firing fronts for 75 H. P. Heine boilers.

048. Rogers 30-ton locomotive.
049. No. 3 Gates crusher.
050. 44 inch x 6 feet 6 inch rattler.
052. 100 steam traps from 4 to 12 inch diameter.
053. Pratt & Whitney double-spindle drill press.
054. Automatic horizontal boring bar.
055. 2 iron planers, 1 18x18x4 and 1 20x20x6.
056. 2 Raymond crushers and pulverizers.
057. 2 Jones water-wheels, one 24 inches and one 30 inches.
070. 2 wire stretchers.
061. 2 Wells lights, large size.
0321. Hotchkiss hammer.
0339. Set of boiler rolls; will take sheets 38 inches wide.
063. 16 Ingersoll-Sergeant rock drills.

500,000 feet of standard black wrought-iron pipe, from ½ to 12 inch diameter.

5 carloads of steel sheets, from 8 to 16 gauge.

All kinds of plumbing material, including bathtubs, lavatories, sinks and closets.

We carry a complete stock of hardware, enclosing such items as horseshoes, horseshoe nails, hammers, hatchets, axes, handles, etc.; also just received 5 carloads of wire nails.

BRAND NEW RUBBER BELTING.

450 feet 18 inch 5 ply.
100 feet 20 inch 5 ply.
250 feet 22 inch 5 ply.
100 feet 24 inch 5 ply.
52 feet 34 inch 5 ply.
135 feet 20 inch 6 ply.
30 feet 24 inch 6 ply.
37 feet 16 inch 7 ply.
30 feet 20 incl 7 ply.
90 feet 24 inch 9 ply.
118 feet 14 inch 9 ply.

SECOND-HAND LEATHER BELTING, DOUBLE THICK.

200 feet 16 inch.
100 feet 18 inch.
200 feet 19 inch.
100 feet 20 inch.
100 feet 22 inch.
100 feet 24 inch.
100 feet 28 inch.

Also in stock all kinds of **New Leather Belting, Oak Tanned Short Lap,** Single and Double, in all widths.

We handle every conceivable kind of a belt, and guarantee to save you money on anything in the line.

No. ELECTRICAL.

038. 50 light 2000 C. P. Westinghouse arc dynamo.
039. 45 light Schuyler arc dynamo.
040. 30 light Schuyler arc dynamo.
041. Two 50 K. W. compound wound Westinghouse alternators.
042. 50 K. W. single phase Westinghouse alternator.
043. 20 light brush arc machine.
044. 25 H. P. 500 volt railroad motor.
045. 60 K. W. Ft. Wayne alternator.

Also in stock all kinds of weatherproof and rubber-covered wire, telephone supplies, telephones, fan motors, annunciators, arc globes and electrical supplies in general.

OUR COMPLETE LIST ON APPLICATION.

OUR CATALOGUE No. 239 contains an itemized and complete list of our stock on hand. It is such a book as every up-to-date merchant and mechanic should have in his possession. It is free for the asking.

Five Long Distance Telephones in our Office, all "Yards 827." Telegraphic information by "Western Union" or "Postal" Code.

Chicago House Wrecking Co.

W. 35th and Iron Streets, CHICAGO.

FOR SALE.

We own about **2000** tons of

60-lb. STEEL RELAYING RAILS

and Angle Splice Bars for same. Will sell in lots to suit buyer, and subject to Hunt & Co.'s inspection. Well located for Southern delivery.

We also handle new or second-hand light-weight Rails.

ROBINSON & ORR,
419 Wood Street, Pittsburg, Pa.

ATTENTION!

To Eclipse Machine & Boiler Works

1132-1138 W. 14th Street,

CHICAGO, ILLS.

ICE MACHINES.

One 75-ton, Vilter.
Two 15-ton machines.
One 10-ton machine.

BOILERS.

Vertical, Tubular and Fire-box, all sizes.

ENGINES.

One 10x15 Buckeye, automatic.
One 8x16 Buckeye, automatic.
One 11½x15 Bay State, slide valve.
Two 10x16, slide valve.
One 8x12, slide valve.

PUMPS.

One 10x7x10 Smith-Vaile.
One 4⅝x3½x4 Duplex.
One 4¾x2¾x4 Dean Duplex.
One No. 5 Knowles.

WOODWORKING MACHINERY.

One 24" Buss Machine Works Planer.
One 30" 3-roll Perry Sander.
One Door Relisher and Wedge Cutter.
One 24" Surfacer, incline bed.
One Double Spindle Shaper.

Write for prices before purchasing elsewhere.

MENGEL'S MACHINERY EXCHANGE, **26** East Balderston Street.

FOR SALE CHEAP—All sizes STEAM AND GAS ENGINES, **50**-H. P. LOCOMOTIVE, **60**-H. P. HORIZONTAL, **100, 40, 25, 15, 9** AND **4** H. P VERTICAL BOILERS, **22x30 150**-H. P. FARQUHAR PISTON VALVE ENGINE, **5**-H. P. VERTICAL ENGINE and BOILER combined, **20**-H. P. HOISTING ENGINE, OTIS **25**-H. P STEAM ELEVATOR ENGINE, POWER WORM GEARED FACTORY ELEVATOR, TWO REVOLUTION and DRUM CYLINDER PRESSES, JOB PRINTING PRESSES, all sizes and makes; complete STEREOTYPE OUTFIT, **42"** HOE POWER PAPER CUTTER, Sheridan Extra Heavy Toggle Joint SMASHING PRESS, Lot of TYPE, IMPOSING STONES, STANDS and CASES, large lot of standard makes of PRINTING INKS at ½ price, WOODWORKING MACHINERY, SHAFTING, BELTING, PULLEYS and HANGERS. Always positive bargains at MENGEL'S MACHINERY EXCHANGE, **26** E. Balderston St., near Light.

WANTED.

Five to six hundred feet of good second-hand 8-inch standard pipe and about two hundred feet of good second-hand 10-inch standard pipe. It must be in good condition.

JOSEPH HULL, Savannah, Ga.

ROLLING MILLS.

We have purchased the entire plant of the Iron Gate Rolling Mill in Virginia, and will have for sale some first-class second-hand Mill Machinery, including Shears, Trains of Rolls, Engines, Boilers, etc., etc. If you are in the market for any of this equipment, let us know your wants.

POULTERER & CO.

410 Bullitt Building, PHILADELPHIA, PA.

FOR SALE OR EXCHANGE **BOILERS, PUMPS, ENGINES, Etc.** 2 80-h.-p. Babcock & Wilcox water tube Boilers. A large assortment of tubular and fire-box Boilers, Corliss, Slide Valve and Upright Engines, Single and Duplex Steam Pumps, Feed Water Heaters, etc. Goods constantly listed with us. All goods guaranteed as represented. Send for stock list and let us know your wants, and we will supply you.

H. MOOERS CO., 2d & Sycamore Sts., Milwaukee, Wis.
Steam Fitting and Machine Shop.

FOR SALE.

Can Ice Making Machinery,

INSTALLED BY

YORK MANUFACTURING CO.,

(60 Ton Daily Capacity)

complete with 2 Compound Compressors, 30 ton each. Distilling Tanks, Receivers, Boilers, all Piping, Dynamo and Engine for Electric Lighting and Driving Travelling Cranes for handling cans. About 1500 cans, used 2 years, and can be bought right, either to be used on premises or removed. For full particulars, address,

S. T. LUND,

120 High Street, BOSTON, MASS.

Second-Hand MACHINERY

For Immediate Delivery.

1 36 in.x36 in.x9 ft. Sellers Planer, 1 head.
1 36 in.x36 in.x7 ft. Sellers Planer, 1 head.
1 30 in.x30 in.x10 ft. P. & W. Planer.
1 32 in.x32 in.x10 ft. P. & W. Planer.
1 3 Spindle Jones & Lamson Drill Press.
1 6 Spindle Nut Tapper, ½ in.
1 10 in New Haven Shaper.
1 Bement Traverse Shaper, 60 in. table, 14 in. Stroke.
1 Bement Traverse Shaper, 72 in. table, 12 in. Stroke.
1 No. 1 Brainard Universal Milling Machine.
1 No. 4 Lodge & Davis Universal Milling Machine.
1 Portable Air Compressor, motor driven.
1 No. 7 Long & Allstatter Punch.
1 20 in.x21 ft. Johnson Engine Lathe.
1 46 in.x24 ft. Engine Lathe.
1 48in.x24ft Engine Lathe, triple geared
1 14 in.x6 ft. Blaisdell Engine Lathe.
1 16 in.x8 ft. Blaisdell Engine Lathe.
1 24 in. Gisholt Turret Lathe.
1 28 in. Gisholt Turret Lathe. (New.)
1 60 in. Heavy Radial Drill, 5 in. spindle.
1 42 in. Betts Radial Drill.
1 3 in. National Bolt Cutter.

U. Baird Machinery Co.

123-125 Water Street,

PITTSBURG, PA.

Dynamos, Motors, Engines.

Any Size. Any Voltage.

WRITE FOR PRICES.

We can save you money.
We Rewind Armatures.
We Wire Factories.

WRITE US.

McCAY ENGINEERING CO.

107 E. German St., Baltimore, Md.

FOR SALE.

One practically new 20x42 Harris-Corliss Engine, price $1800; one Erie-Ball Engine, 13x12, perfect order, $600; one Ideal Engine, 13x12, $650; one 12x30 Harris-Corliss Engine, nearly new, run one year, $700; one 12x36 Corliss Engine, $700; one 26x48 four-valve Engine complete, in good order, $1000; one 18x48 four-valve Engine complete, $800; one 24x48 Automatic Wright Engine, $800; two Manning Boilers, 150 H. P. each, good for 120 lbs. of steam, $600 each; one Boiler, 66" diam. 16' long, horizontal tubular, 100 H. P., 3⅜" tubes, run two years, all complete, $350, warranted 90 to 100 lbs. steam, as good as new.

F. H. DAVIS & CO.

53 State Street, BOSTON, MASS.

FOR SALE CHEAP.

Two First-Class Engines

Fifty (50) Horse Power each. Both in good condition. Manufactured by Talbott & Sons. Each engine on continuous test has shown over seventy-five h. p. For particulars, address

RICHMOND MICA CO., 323 S. 9th St., Richmond, Va.

PARTIAL LIST OF

SECOND-HAND MACHINERY.

2 120-h. p. 66"x18' Tubular Boilers.
1 80-h. p. 60"x18' " "
1 60-h. p. 54"x14' " "
1 100-h. p. 13x12 Ball Automatic Engine.
2 16x12x10 Worthington Duplex Pumps.
2 34 Exhaust Fans.
1 60-h. p. 10x12 N. Y. Safety Power Automatic Engine.
1 80-h. p. 12x20 Baker Automatic Engine.
1 13½x10x18 Smith-Vaile Single Pump.
1 12-in. Centrifugal Wrecking Pump with Direct Connected Engine.

Also a large number of Smaller Engines, Boilers, Pumps, Heaters, etc.

RAINIER & WILLIAMS,

63 S. Canal St., CHICAGO, ILL.

Engine Bargains

100 h. p. 12x24 Buckeye Automatic.
100 h. p. 12x20 Rice Automatic.
150 h. p. 16x42 Fraser & Chalmers Corliss.
150 h. p. 14x30 Cummer 4 valve Automatic.
250 h. p. 12x22x18 Payne Tandem Cpd. Auto.
65 h. p. 12x24 Cooper Slide Valve.
50 h. p. 12x18 Slide Valve.
14x7x10 Smith-Vaile Fire Pump.
200 h. p. Baragwanath Heater.
45 h. p. 11½x18 Slide Valve.
60x16 ft. Tubular Boiler.
200 h. p. Stillwell-Bierce Heater.

The above are all in first-class condition and ready for shipment.

A. L. DAWSON & CO.,

27-31 W. Washington St., CHICAGO, ILL.

Second-Hand Machinery

For Immediate Delivery at Bargain Prices.

1 T. H. 110 volt Generator, 50 K. W., perfect order, $450.00.
1 T. H. 110 volt Generator, 30 K. W., perfect order, $270.00.
1 Buffalo Steam Pump Co.'s Compound Duplex Pump, size 12 and 18½ by 10½ by 12, perfect order, $600.00.

Corliss Automatic Slide Valve Engines, Boilers, Pumps, Heaters, Iron and Woodworking Tools.

WISCONSIN MACHINERY CO.

125-127 W. Water Street, Milwaukee, Wis.

Contractors' Outfit

FOR SALE.

1 1000-ft, 1¼-in. Sherman Cableway, with Lambert engine, complete.
Stiff Leg, Guy and Breast Derricks, hand and steam power.
Traveling Derrick, Byer's.
Concrete Mixer, Power.
Horizontal Boiler, 40 H. P.
"New Ingersoll" Drills E 9, new and second-hand.
Pile Driver. Bucyrus Dredge.
Austin "New Era" Graders and Dump Wagons, slightly used
Wheel and Drag Scrapers, used less than one month.
Horse and Mule Harness.
Pipe Fitting and Machine Shop Outfit.
Plows, Shovels, Small Tools, etc.

Machinery located at Trenton Falls, N. Y.; Rome, N. Y., and Wyoming, Ill.

For particulars, enquire of

The Warren-Burnham Co.,

81 Fulton St., New York City.

New and Second-Hand

Iron Tools and Woodworking Machinery

Corliss and Double Valve Engines for Trolley Roads and Electric Lighting Stations.

H. C. BAKER & CO.,

114 N. 3d Street, Philadelphia, Pa.

FOR SALE.

Lidgerwood Log Snaking Plant,

Complete with engine, drums, boiler, ropes, etc. Outfit is new, never having been used. Address

W. R. WARE, P. O. Box 323, Atlanta, Ga.

FOR SALE.

A COMPLETE CAMPBELL CYPRESS OUTFIT,

With Engines, Boiler, Pump, Warehouse Trucks, Etc.

R. S. ARMSTRONG & BRO., Atlanta, Ga.

FOR SALE.

One 14 in.x30 in R. H. new Corliss Engine (our own build) with 10 ft. diam. wheel 17 in. face in halves; complete, quick delivery and low price. Address

KEYSTONE ENGINE & MACHINE WORKS,
5th and Buttonwood Sts, Philadelphia.

FEED-WATER HEATERS

2nd-Hand 80, 160 and 250 h. p. Berrymans, 200 h.p. Goubert, 150 and 600 h p. Wainwrights, 500 h.p. National, 600 h.p. Stillwell-Bierce Open Heater. All guaranteed. **F. L. PATTERSON, Havemeyer Bld'g, N. Y.**

FOR QUICK DELIVERY.

18", 22", 24", 26", 28", 30", 32" and 36" Lathes. Any length.

SCHUMACHER & BOYE,

Cincinnati, O.

Flour Mill Machinery,

NEARLY AS GOOD AS NEW,

At One-quarter Cost to Close Business.

AT WASHINGTON, D. C.

Jonathan Mills, Universal Flour Dressers, class "A," $20 each, manufactured by the Cockel Separator Co., Milwaukee, Wis.

One Galt Combined Brush and Smutter No. 2 (wheat cleaner, upright) at $15; manufactured by Eureka Mfg. Co., Rock Falls, Ill.

One Richmond No. 3 Improved Receiving Separator (wheat cleaner) at $35.

One Brush Machine, No. 4, combined beater and adjustable upright brush, at $25; manufactured by Richmond Mfg. Co., Lockport, N. Y.

One Kurth's Cockel Separator, No. 0, at $25; manufactured by Prospect Machine & Engine Co., Cleveland, Ohio.

Three Improved Prinz Dust Collectors, No. 5, at $10 each; manufactured by Milwaukee Dust Collector Co.

Four Geo. T. Smith Middlings Purifiers, No. 1, at $20 each; manufactured by Geo. T. Smith, Jackson, Mich.

One A. H. Kirk's No. 2 Purifiers at $20 each.

Two Peerless Dust Catchers, No. 3, at $5 each; manufactured by Kirk & Fender, Minneapolis, Minn.

One No. 2½ Clements wood top double variety molder, as good as new, $100.

AT ELIZABETH CITY, N. C.

Two 3x7-inch Keystone Fooring machines, in good order, $200 each.

The Following at Less Than One-half Cost.

Two 4-roller mills, 9x24, chilled iron, at $100 each. Note.—The above rolls are Gray's belted noiseless rolls, manufactured by E. P. Allis Co., Milwaukee, Wis.

One Stevens roller mill, chilled iron, 9x30, at $100; manufactured by John T. Noye, Buffalo, N. Y. Note.—The above, with pulleys and journal boxes, are in good condition.

Also a large number of pulleys, sprocket wheels, shafting, journal boxes, elevator heads and boots, couplings, collars, bevel gears, conveyors—just the things you need in building a new mill. F. O. B. cars or boat.

For any other information required, correspondence must be had with

THOS. W. SMITH, Lumber Dealer,

Washington, D. C.

FOR SALE.

Boiler Bargains.

3 125 H. P. 72"x16', 76 4" tubes.
1 Double Deck Hor. Boiler, 60"x14', with steam drum 48"x15', 74 3" tubes.
1 80 H. P., 60" diam., 16' long, 49 4" tubes. All above good for 90 lbs. or more.
10 Hughes Duplex Steam Pumps, 4" suction, 3" discharge; in fine working order.

Cheap to quick buyers. Large line of Vertical and Horizontal Boilers and Engines and Machinery of all kinds.

J. D. MALLORY,

22 Light Street, Baltimore, Md.

Woodworking Machinery.

One 32" Wood Turning Lathe. One 32" x22' Wood Lathe. One Smith Tennoning Machine. One McNish & Butler Tennoning Machine. One three-sided 8" Moulding Machine. Three 8" Outside Moulding Machines. One Fay Single Stem Shaper. One Walker two-sided Panel Raiser. One 24" Single Surfacer, Planer and Matcher. One Foot-power Miterer. Two Jig Saws. One 6' Hand Saw. One Saw Table, takes 18" saw. One Single Saw Arbor, 17" long.

CARLIN MACHINERY & SUPPLY CO.,

Lacock and Sandusky Sts., **Allegheny, Pa.**

For Sale Cheap.

One new Ammonia Compressor with 4x4 cylinders, driven by a 6x6 vertical engine, all complete on a cast iron base 2 ft. wide by 4½ ft. long, self contained. Address

KEYSTONE ENGINE & MACHINE WORKS,
5th and Buttonwood Sts., Philadelphia, Pa.

2D-HAND BERRYMAN HEATERS,

all sizes. Taken in trade for our Improved Berryman. In perfect order. Tested and guaranteed. Prices reasonable. BENJ. F. KELLEY & SON, Makers, 91 Liberty St., N. Y.

FOR SALE CHEAP.

No. 6 Root Pressure Blower, with iron impellers, in good condition.
No. 6 Sturtevant Steel Pressure Blower.

A. ASHER, 123 Liberty St., cor. Greenwich, NEW YORK.

John A. Waters & Co.

13½-17½ S. Eighth Street,

RICHMOND, VA.

New and Second-Hand Boilers, Engines, Mining Outfits and General Machinery.

One Complete Stem Fertilizer Plant, including 1 Exhaust Fan, fittings and piping; 90' Chain Belt and Sprocket Wheels; Drier and fittings; Conveyor and belting; 22' Conveyor and fittings; Elevator Sprocket Wheels and Chain Belting; Scientific Attrition Mill, No. 14; Exhaust Fan; 42' Piping; Dust Collector and connections; Reel and fittings; Transmitting Rope Sheave; 1 large Breaker; 1 Combination Breaker; 1 Magnetic Separator; 1 Self Feed Ross Cutter, No. 116; Conveyor and Elevator; 1 30" New American Turbine Wheel, all bearing parts new.

CONTRACTORS' PLANT

FOR SALE.

1 Lidgerwood Double 8¼x10 Double Drum Hoisting Engine.

1 16"x30"x42' Cooper Corliss Tandem Compound Engine, with 15 ton fly Wheel, 18'x38" face.

1 Ingersoll Compressor, 16—16x24.

1 Morris Co. Compressor, 9½—9½x15.

1 Rand Belt Driven, 6"x6".

2 Cockburn Concrete Mixers.

J. C. SAXTON, 18 Broadway, New York.

FOR SALE.

1 Fairbanks Gasoline Engine (30 horse power). This engine is new and complete in every particular, including a 40-gallon galvanized tank, 1 box batteries, fixtures, piping, belting, and an extra 525-gallon galvanized gasoline tank. Will sell at a great bargain. 1 Steam Fire Engine, late from Baltimore department. 4 Hoisting Engines, 12, 15, 18 and 25-horse power respectively. A number of single and duplex Steam Pumps. Cistern, Deck and Deep Well Pumps (new). General machine work and repairing. I make a specialty of repairing Steam Pumps, High-speed and Gasoline Engines.

W. W. KIRK,

406 E. Pratt St., Baltimore, Md.

SPECIAL GAS ENGINE BARGAINS.

50 H. P. Foos, 38 H. P. White & Middleton, 25 H. P. New Era, 28 H. P. Fairbanks-Morse, 15 H.P. Otto, 12 H .P. Otto, 10 H. P. New Era, 2-12 H. P. Fairbanks-Morse, 15 H. P. Chicago, 12 H. P. Chicago, 2-7 H. P. Chicago, 2-3 H. P. Chicago, 2 6 H. P. Fairbanks-Morse, 2-2½ H. P. Fairbanks-Morse. Engines, all sizes, bought, sold and exchanged. Address

A. H. McDONALD, 36 W. Randolph St., CHICAGO.

FOR SALE.

A TRAVELING CRANE,

34 feet span, with 1 6-ton Harrington Hoist. A Bargain.

SOMERVILLE ELECTRIC LIGHT CO.

110 Willow Ave., W. Somerville, Mass.

MACHINERY BARGAINS.

1 3-sided Planer and Matcher, Frank, $175. 1 38" Connell & Dengler Circular Re-saw, $1.25. 1 42" 3-roll Egan Sander, $400. 1 30" Single Drum Sander, $45. 2 20" Pony Planers, each, $65. 1 24" Single Surfacer, $100 4 Engines. 2 Boilers. Write for complete list.

Cleveland Belting & Machinery Co.
CLEVELAND, OHIO.

FOR SALE.

Good Second-hand Dynamos and Machinery, large or small sizes, great variety. **Boilers, Engines, Gas Engines, Heaters, DYNAMOS,** all kinds and sizes. **Pipe, Shafting, Pulleys, Belting and General Factory Supplies.** Write us for anything you want for full description and prices. We have some great bargains to offer.

American Electric Supply & Mfg. Co.

27 Thames Street, NEW YORK CITY.

BIG BARGAINS.

General Electric, three phase, sixty cycle, Inductor Motors

1 15-H. P. 110 volt, speed 900, price $350.00
1 30-H. P. 110 volt, speed 900, price $550.00
1 75-H. P. 550 volt, speed 600, price $1100.00

Chicago delivery, ready to ship. Hundreds of other bargains in stock. **GUARANTEE ELECTRIC CO.** 133 S. Clinton St., CHICAGO

Chas. E. Gregory, President.

FOR SALE.

Lot of Boilers, Engines, Lathes, Planers, Drill-Presses, 1 Large Fire Pump, Steam Pipe, all sizes, and about 500 Tanks of different sizes.

WILLIAM ECKBOLD'S SONS,

711 E. Girard Ave. PHILADELPHIA, PA.

BARGAINS—One 5'x16' Hor. Tub. Boiler, front and all fittings, good for 100 lbs.; 10"x14" Buckeye Engine; 8"x9" Vertical Slide Valve; 9"x20" Hor. 4-horse Baxter; several Pumps. Write or telegraph any machinery wanted or for sale. J. F. DENIHAN, 450 Hamilton Ave., Brooklyn.

FOR SALE.

We carry a large line of Engines, both new and second-hand, in stock—cross-compound Corliss, tandem-compound Corliss and simple Corliss from 1500 H. P. down to 75 H. P.

Automatic Engines, every size and make—slide and piston-valve Engines from 1000 H P. down to 5 H. P.

BOILERS—Water tube, horizontal tubular, locomotive Boilers, etc.

HEATERS—Open and closed heaters, all sizes and makes.

MACHINE TOOLS—Lathes, planers, shapers, drill presses, chucks, emery wheels, power punches, etc.

BLOWERS, Exhaust fans, shafting, pulleys, hangers, valves, governors, belting and pipe.

PUMPS—All sizes and makes from 3,000,000 gallons down.

CONDENSERS—Deane, Nordberg, etc.

ELECTRICAL MACHINERY.

1 600-light Edison incandescent dynamo.
2 400-light Edison incandescent dynamos.
1 60-light Thomson-Houston incandescent dynamo.
1 65-light Brush arc.
1 60-light Wood arc.
1 50-light Thomson-Houston incandescent dynamo.
1 30-light Brush dynamo.

ROLLING-MILL MACHINERY.

One 18" muck mill, one 18" sheet-bar mill, one squeezer, iron and wooden jib cranes, traveling cranes, rotary shears, hydraulic pumps, floor-plate, buggies, etc.

STEAM HAMMERS.

4000, 1200, 700 and 400 pounds double-legged Morgan.
275 pounds single-legged Kline.

ICE AND REFRIGERATING PLANT.

One pair of Pictet horizontal Ice Machines, consisting of two Corliss Engines, 16"x36", and ammonia Compressor, 10"x36" (ammonia end being new and manufactured by the Vilter Manufacturing Co., Milwaukee, Wis.); capacity of each machine 25 tons ice or 50 tons refrigerating.

The above is a very fine machine, thoroughly overhauled, and has just been sold to us by a Pittsburg firm, who replaced it with a machine of much larger capacity. Price $4500 f. o. b. Pittsburg.

PUMPS—FOR WATER-WORKS.

One Worthington Duplex 25x20x25, rods 3½" diameter, displaces 32,000 gallons per stroke, 110 strokes per minute. Total capacity over 5,000,000 gallons in twenty-four hours. Weight about 40,000 pounds.

WICKES BROS., 45th St. & A. V. Ry., Pittsburgh, Pa.

Main Offices and Works, SAGINAW, MICH.

Branch Offices, 95 Liberty St., NEW YORK. 1214 Marquette Bldg., CHICAGO

For Sale at a Bargain.

LOCOMOTIVES—3 standard gauge locomotives with tenders; 2 with 16x24 cylinders; 1 with 18½x24 cylinder. 1 42" gauge H. K. Porter saddle tank locomotive, cylinder 9x14".
STEAM SHOVELS—1 Marion, style "A," with 1½ yd. dipper. 1 Osgood with ¾ yd. dipper.
ENGINES—1 20x40x36 Wright Corliss tandem compound engine. 1 18¾x34x42 Fitchburg tandem compound engine. Also several others of different styles and horse power.
PUMP—1 Worthington compound duplex steam pump, No. 20,689; size 12x18½x10¾x10.
HOISTERS—1 pair of 14x24 link motion mine hoisting engines. Also several others.

The above can all be seen at our yards in Newark, N. J. Correspondence solicited.

GRANT & WILLIAMS,

Park Row Building, NEW YORK.

FOR SALE.

Saddle Tank Locomotive, formerly used on Brooklyn Bridge; 4 ft. 8½ in. Gauge, 4 Drivers, Cylinders 12 in.x16 in., Tank Capacity about 800 Gallons, Weight about 25 tons loaded. Write for cut with details and price.

BENJAMIN WATSON,

Coffee Exchange Building, 66-70 Beaver Street,

NEW YORK CITY.

Steel Rails, Cars, Locomotives, Railroad Supplies

FOR SALE.

Locomotives.

1 Standard Gage 15-ton Shay Geared Locomotive. 1 6x10-36" Gage Saddle Tank Porter Locomotive. Light Locomotives our specialty.

WRITE US.

TORBERT & PECKHAM,

1607 Monadnock Block, Chicago.

LOCOMOTIVES For Sale.

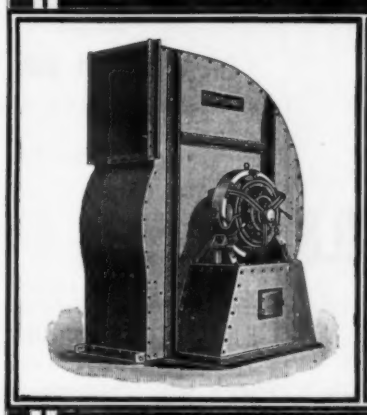
1 Porter, 11x16 Forney Type, 36" gauge.
1 Porter, 10x16 Saddle Tank, 4'8½" gauge.
1 Vulcan, 10x16 Saddle Tank, 36" gauge (new.)

J. C. SAXTON, 18 Broadway, New York.

FOR SALE
FREIGHT, PASSENGER AND LOCOMOTIVES
LOCOMOTIVES
AND
ALL SIZES **CARS** QUICK DELIVERIES
F. M. HICKS, 225 DEARBORN ST. CHICAGO, ILL.

STURTEVANT
ELECTRIC FANS

In 100 types and sizes.
Special designs for requirements.
We build both fan and motor.



ALSO

Blowers
Exhausters
Steam Fans
Engines
Electric Motors
Generating Sets
Forges
Exhaust Heads
Steam Traps
Heating
Ventilating and
Drying Apparatus
Mechanical Draft

151

B. F. STURTEVANT Co. BOSTON.
NEW YORK · PHILADELPHIA · CHICAGO · LONDON ·

FOR SALE.

One S. A. Woods' 8-in. No. 2½ Matcher, one S. A. Woods' No. 17 Double Surfacer, 27-in.; one 15-in. Hoyt No 27 Planer and Matcher, one S. A. Woods' Double Surfacer and Matcher, four sets of Box-Making Machinery, four sets of Window-Frame Machinery, five Large Double Sturtevant Fans, one Power Feed Rip Saw, one Hoyt No. 13 Double 13-in. Surfacer.

I have over 150 machines.

SEND FOR MY LIST.

G. W. WILLEBRANDS,

50 Jefferson Ave.

DETROIT, MICH.

Freight Cars for Immediate Delivery.

We have ready for prompt delivery a large number of BOX, FLAT, GONDOLA (Flat Bottom, Drop Bottom and Hopper Bottom) Freight Cars; 34 ft. long and 30 tons capacity. These cars are in actual service, running over various roads in the United States, enabling us to make prompt delivery (at small freight charges) in almost every section of this country.

Many of them are equipped with M. C. B. Automatic Couplers and Air Brakes applied to wheels by Metallic Brake Beams.

Low Prices. Easy Terms.

NEW YORK EQUIPMENT CO., 71 Broadway, NEW YORK.

RELAYING RAILS

Rails and Locomotives for Sale for Cash or Time Payment Plan.

Two 17-ton 10x14 standard gauge, Forney type. Two 14-ton 9x12 standard gauge, saddle tank. One 27-ton 14x22 standard gauge, 8-wheel. One 8-ton 6x10 standard gauge, saddle tank. One 16-ton Heisler standard gauge, geared. Two three feet gauge geared, Shays. One three feet gauge 8x12 Porter, saddle tank. One three feet gauge 9x14 Porter, saddle tank. One three feet gauge 10x16 Porter, saddle tank.

Also Relaying Rails of all weights from 12 to 60 pounds per yard, for immediate delivery.

Birmingham Rail & Locomotive Co., Birmingham, Ala.

FOR SALE.

2000 tons of 56-lb. STEEL RELAYING RAILS AND ANGLE BARS, in West Virginia, July delivery.

ISAAC JOSEPH IRON CO.

525-531 Hunt St., Cincinnati, Ohio.
Monadnock Block, Chicago, Ill.

---

250 Coal Cars.
500 Flat Cars.
650 Box Cars.

All standard gauge, in good condition, for sale very cheap.

Walter A. Zelnicker, in St. Louis.

FOR SALE.

One 8-horse power Upright Engine,
One 9-horse power Upright Boiler.
One 11-horse power Upright Boiler.

E. J. CODD CO.,

700 S. Caroline St., Baltimore, Md.

KILBY LOCOMOTIVE & MACHINE WORKS

Anniston, Ala.

BUILDERS OF

Logging Cars.

Prices and specifications furnished upon application.

Relaying Rails for Sale.

Immediate Delivery.

230 tons 6" Johnson Girder Rails, Section No 62, in good condition, at Washington, D. C. Also other rails of different weights and descriptions at various points

BENJAMIN IRON & STEEL CO.

BUFFALO, N. Y.

Locomotives, Cars, Rails, FOR SALE.

For every gauge, weight and service. Write for prices.

The Males Co. 15-16-17 Aetna Bldg. CINCINNATI, OHIO.

Locomotives and Cars

FOR

Construction, Logging, Freight and Passenger Service.

SOUTH SIDE ELEVATED R.R.
28-ton Short Wheel Base Engines.

BROOKLYN ELEVATED R.R.
30-ton Forney Type Engines.

NARROW GAUGE EQUIPMENT.

FITZ-HUGH & CO.
1647-48 Monadnock Block, Chicago. 141 Broadway, New York.

Passenger, Baggage and Mail
Combination . . . . .
Freight . . . . . . } **CARS**

Write for prices.

FITZ-HUGH & CO.
1647-48 Monadnock Block, Chicago. 141 Broadway, New York.

FOR SALE.

NEW STEEL RAILS

12, 16 and 20 lbs. to the yard.
RELAYING STEEL RAILS, 25 lbs. to the yard, with splices.
All ready for immediate shipment.

HYDE BROS. & CO.
902 Lewis Building,
PITTSBURG, PA.

FOR SALE.

Relaying Rails, Etc.

450 tons 60 lb. Steel with angles.
200 tons NEW 40-lb. Steel with angles.
250 tons 35-lb. Steel with angles.
100 tons 30-lb. Iron with splices.
FROGS and SWITCHES, Steam Pumps, Second-hand Pipe.

MAY & SPALDING, Atlanta, Ga.

WE BUY OR SELL

Relaying Rails of all sections. We have 16 and 25 pound rails for prompt shipment. Dealers in Machinery of all kinds, Boilers, Pipe, etc., and buy Scrap Iron, Brass, Copper, etc. Correspondence solicited.

J. B. JONES & CO.
310 to 320 Morgan St. ALLEGHENY, PA.

FOR SALE.

125 tons 56 lb., 250 tons 65 lb. choice Relayers, 40 tons seconds, suitable for switch, yard and guard rail. Immediate delivery.

DALLETT & CO.
201 Walnut Place, PHILADELPHIA, PA.

RAILWAY EQUIPMENT.

Relay Rails, 35-lb. and 40-lb. section. Locomotives for every variety of service, overhauled and ready for use. Make known your wants in locomotives and we can supply you.

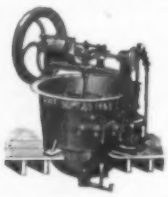
SOUTHERN IRON & EQUIPMENT CO., ATLANTA, GA.

FOR SALE.

Bar Mill, complete with muck and finishing rolls.
12"x16"x18" Cross Compound Boiler Engine, in first-class condition.
Also Buy and Sell Relaying Rails, Locomotives and Cars.

JUSTICE COX, Jr. & CO., Limited,
552-554 Bullitt Building, Philadelphia, Pa.

DOPP'S
Improved
Power Soap Crotcher.



H. WM. DOPP & SON,
Mfgrs.
1300-1310 NIAGARA STREET
BUFFALO, N. Y.

FOR SALE.

RELAYING RAILS.

500 tons of 60 lb. Steel,
With Angle-Bars.

500 tons of 45 lb. Steel,
With "Fisher" Joints.

TIDEWATER DELIVERY.

New Light Steel Rails.

THE STEEL RAIL SUPPLY CO.
100 Broadway, NEW YORK CITY.

WANTED.

The Alabama Consolidated Coal & Iron Company, Birmingham, Alabama, desires to purchase several DROP-BOTTOM DUMP ORE CARS, capacity twenty tons and upwards.

Royersford Foundry & Machine Co.
Builders of up-to-date
Punch and Shearing Machines.
Well built. Honestly rated. They are money makers. Catalogue free.
ROYERSFORD, PA., U. S. A.

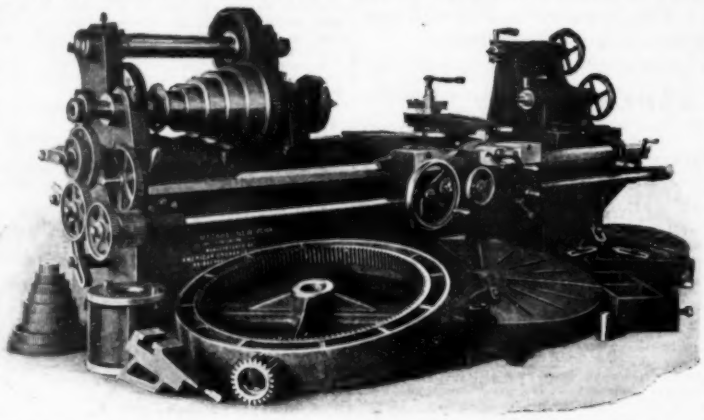
CHAS. LEFFLER & CO.
49-61 Clymer Street,
BROOKLYN, N. Y.

PRESSES, DIES AND TOOLS FOR TIN CANS AND BOXES.

Sheet Metal Working
MACHINERY.
See large ads. in last and next issues.
J. M. ROBINSON & CO., Cincinnati, O.

COMMON SENSE
SCREW PLATES
Taps, Dies and Reamers
W. L. BRUBAKER & BROS., Millersburg, Pa.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.

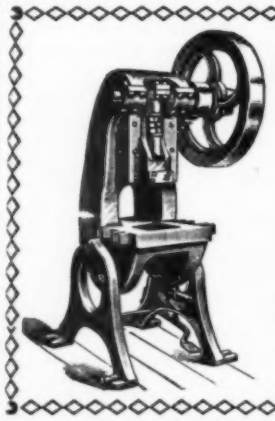


McCabe Is Just Waiting

for a chance to show you how to save money on your lathe equipment—how his New, Heavy, Double Spindle Lathe, costing about half as much as a single large lathe, will take the place and do the work of two lathes. McCabe will give you facts and figures to substantiate every claim and will show you how the thing is being done right along, every day, in machine shops great and small. There's no secret about it; it's just two Lathes on one bed—a 26-inch swing, back-geared, for the regular run of work, and a 48-inch swing, triple-geared or with geared face-plate (ratio 66 to 1), to take care of heavy jobs. It's a profit-winning combination anywhere, but especially where there's just enough heavy work to necessitate a big lathe, but not enough to make it pay. Better give McCabe a chance to explain its other advantages.

J. J. McCABE, 14 Dey Street, New York.

FOREIGN AGENTS—Schuchardt & Schutte, Berlin, Vienna, Brussels, St. Petersburg, Stockholm and Cologne. Chas. Churchill & Co., London, Birmingham, Manchester and Glasgow.



Tools for Sheet Metal.

TINSMITHS' and ROOFERS' TOOLS,
PRESSES and DIES,
SHEARING MACHINES,
ROLLS, PUNCHES,

Made by the

Niagara Machine & Tool Works,
BUFFALO, N. Y.

Write for Catalogue M.

Die and Steel Forgings, Weldless Rings, Forged Tool Steel Spinning Chucks.

Superior to steel castings. Our steel is made expressly and solely for us. Dies forged under our system will cut 10 to 25 per cent. more blanks than others before regrinding.

HAY-BUDDEN MFG. CO., 254 North Henry St., Brooklyn, N. Y.

American Iron and Steel Mfg. Company

GENERAL OFFICES AT LEBANON, PA., U. S. A.

MANUFACTURERS OF

MERCHANT BAR IRON

AND STEEL (Annual Capacity, about 150,000 tons.)

ALSO EVERY VARIETY OF

Machine Bolts, Nuts, Washers, Turnbuckles, Lag Screws,

Railway and Dock Spikes, Harvey Grip and other Railway Track Bolts,

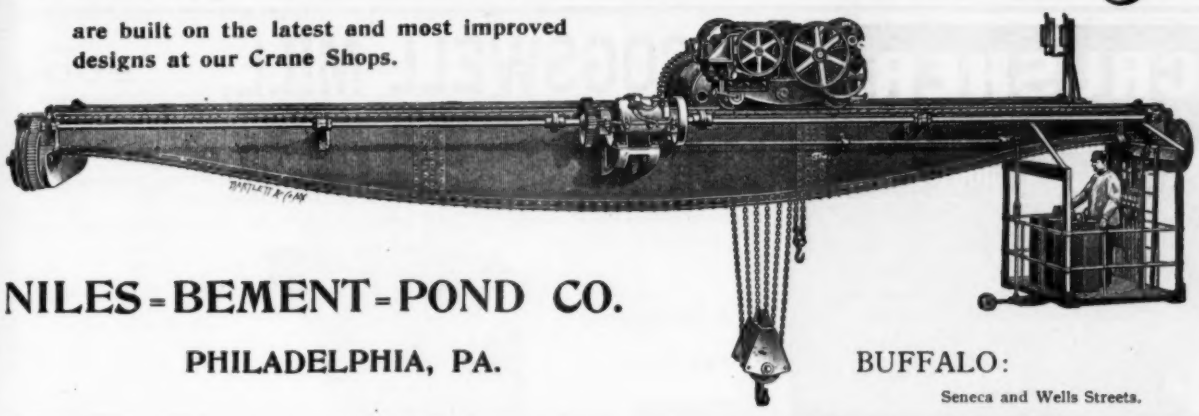
Boiler, Ship and Structural Rivets,

CAR FORGINGS, RODS AND IRONS FOR BRIDGES, BUILDINGS, ETC., ETC.

This Company owns and operates the works formerly owned by
J. H. STERNBERGH & SON, Reading, Pa. NATIONAL BOLT, NUT AND RIVET WORKS, Reading, Pa. LEBANON IRON CO., Lebanon, Pa. EAST LEBANON IRON CO., Lebanon, Pa. PENNSYLVANIA BOLT AND NUT CO., Lebanon, Pa.

Niles Electric Traveling Cranes

are built on the latest and most improved designs at our Crane Shops.



Prompt Deliveries.

NEW YORK:
136-138 Liberty Street.

BOSTON:
65 Oliver Street.

CHICAGO:
Western Union Building.

PITTSBURG:
Carnegie Building.

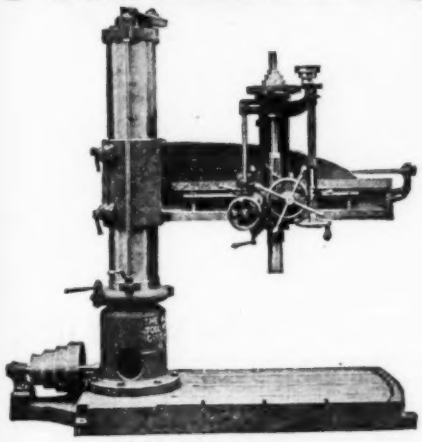
ST. LOUIS:
615 N. 4th Street.

NILES-BEMENT-POND CO.

PHILADELPHIA, PA.

BUFFALO:
Seneca and Wells Streets.

AMERICAN RADIAL DRILLS

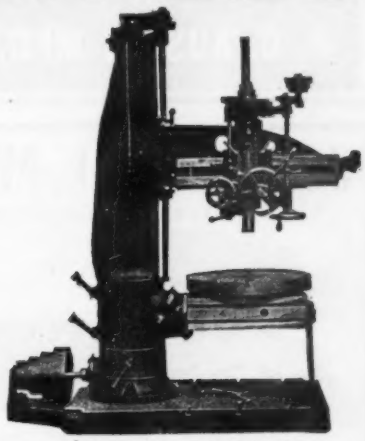


5' PLAIN RADIAL DRILL.

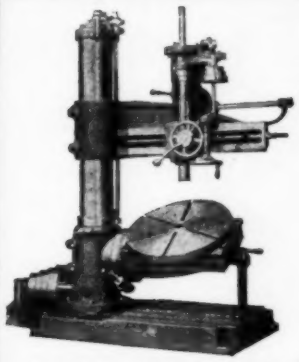
are easily and rapidly operated, because *all* manipulating parts are within instant reach of the workman.

The American Tool Works Co.,

CINCINNATI, OHIO, U. S. A.



3' COMBINATION RADIAL DRILL.



The Back Gears

on a ***No. o Bickford Radial*** are located on the head, bringing the power direct to the work. Can be engaged, disengaged or thrown out of service while machine is running.

There are numerous other good points which we shall be pleased to explain to you if you will drop us a line. RED BOOK FREE.

The Bickford Drill & Tool Co.,

CINCINNATI, OIHO, U.S.A.

AGENTS:—McArdle & Co., New Orleans, La.; Morton, Reed & Co., Balto., Md.; Prentiss Tool & Supply Co., New York and Buffalo; Marshall and Huschart Machinery Co., Chicago, Cleveland and Cincinnati, O.; The E. A. Kinsey Co., Cincinnati, O.; Brown & Zortman Machinery Co., Pittsburg, Pa.; J. W. Wright & Co., St. Louis, Mo.; Henshaw, Bulkley & Co., San-Francisco, Cal.; Cawston & Co, Portland, Oregon; W. E. Shipley, Philadelphia, Pa. A50

"The New Yankee"

DRILL GRINDER

Time Saved.

It takes time to gauge the drills and make the several adjustments necessary on the ordinary drill grinder.

THE NEW YANKEE DRILL GRINDER

has only ONE adjustment and no gage jaws—a boy can make it, and the time saved means money earned.

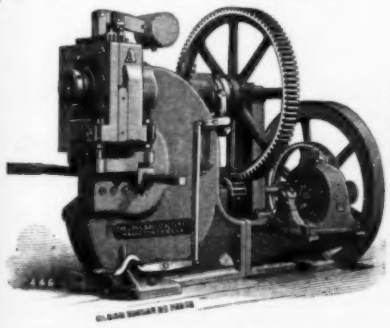
12 Styles and Sizes.

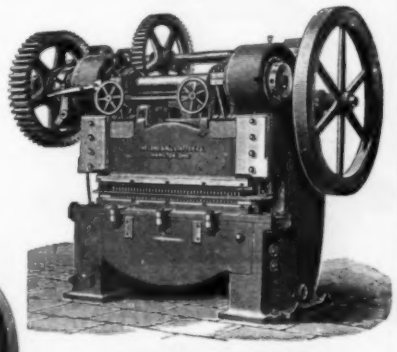
Wilmarth & Morman Co.
Grand Rapids, Mich.

L. L. CLINE Adv. Dept.

POWER PUNCHES AND SHEARS.

BEAM COPING MACHINES,
RIVETING MACHINES,
TIRE WELDING MACHINES,
DROP & HELVE HAMMERS, etc., etc.





DESIGNED AND MANUFACTURED BY

THE LONG AND ALLSTATTER CO.

HAMILTON, OHIO, U. S. A.

Corresopndence Solicited.

TOOL STEEL FACED IRON DIES AND PUNCHES

FOR ALL KINDS OF STAMPINGS.

Die Blocks, Shafts, Cams, Cranks and Machine Forgings

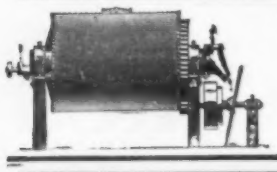
OF ALL KINDS.

JOS. DYSON & SONS,

HAMILTON STREET,

'Phone 2263. CLEVELAND, O.

Advertise in the Manufacturers' Record.

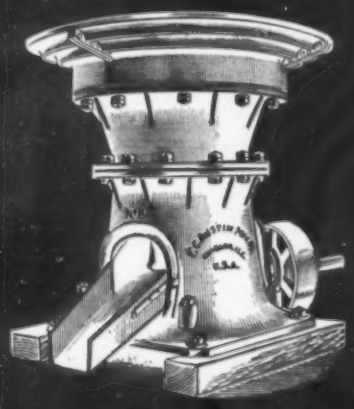


Established in 1869. BEFORE CONTRACTING FOR ANY KIND OF

Pulverizing, Grinding or Crushing Machinery,

Write to J. R. ALSING CO., Office and Works, 75 Guernsey Street, BROOKLYN, N. Y.

AUSTIN CRUSHERS



TECHNICALLY and MECHANICALLY WITHOUT A FAULT

LEAST LIABLE TO GET OUT OF REPAIR, AND MOST ECONOMICAL IN CONSUMPTION OF POWER

WRITE TO DEPARTM'T G. for special catalogue of Crushers, Dump Cars and Contractors' Machinery.

F. C. AUSTIN MFG. CO., HARVEY, ILL.

The COGSWELL MILL,

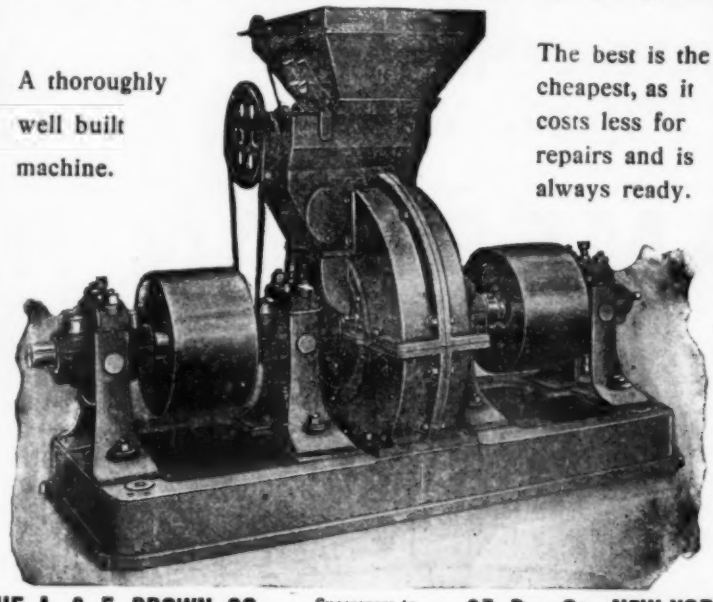
Over 2000 in operation.

THE ORIGINAL AND STANDARD FOR GRINDING

Cotton Seed, Cotton Seed Hull, Oil Cake, Corn, Corn and Cob together, Corn and Oats together, Feed of all kinds, Resin, Spices, Alum, Borax, Cocoanut Shell, Drugs, Sugar, Starch Material (Carbon), etc., etc.

Capacity 3000 to 5000 pounds of feed meal (through No. 16 wire cloth) per hour.

A thoroughly well built machine.



The best is the cheapest, as it costs less for repairs and is always ready.

THE A. & F. BROWN CO. Successors to M. C. COGSWELL, 25 Dey St., NEW YORK.

Jeffrey Coal Mining Machines.

ELECTRIC and COMPRESSED AIR POWER.

SEND FOR CATALOGUES.

ELECTRIC CHAIN COAL CUTTER.

Also a Complete Line of

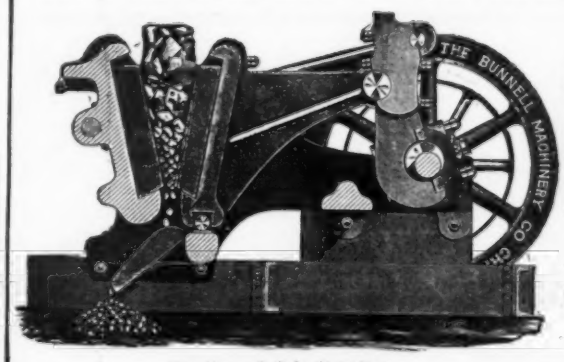
ELEVATING, CONVEYING, POWER TRANSMISSION MACHINERY, ELECTRIC MINE LOCOMOTIVES, POWER COAL DRILLS. . . .

ADDRESS

THE JEFFREY MANUFACTURING CO., Columbus, Ohio, U. S. A.

NEW YORK. CHICAGO. DENVER.

The Bunnell Machinery Co.



Rock and Ore Crusher.

Manufacturers of Earth Handling AND Road Making Machinery.

SUITE: 1612-1617 Old Colony Building, Chicago, Ill., U. S. A.

GRINDS

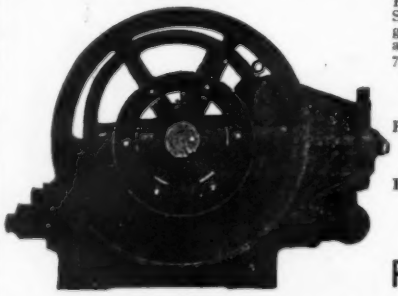
5 Tons Per Hour.

No Screens

New Emery Mill for Phosphate, Rock and Similar Materials.

Send for Circular. Sturtevant Mill Co., 116 Clayton St., Boston, Mass.

Buchanan's Rock Crusher.



Photograph of 13"x24." Weight 30,000 lbs. Swing Stationary Jaw. Pitman and Jaw Standards of high grade, open hearth Steel; Pins, Eccentric Shaft and Tension Rods of Hammered Steel. Sizes 7x10 to 24"x72."

Capacity from 50 to 2000 tons per day.

GEO. V. CRESSON CO.

PHILADELPHIA, PA. NEW YORK, N. Y.

Catalogues free on application.

Buchanan Rock and Ore Breakers. Magnetic Separators. Buchanan's Crushing Rolls. Concentrating Machinery.

Power Transmitting Machinery.

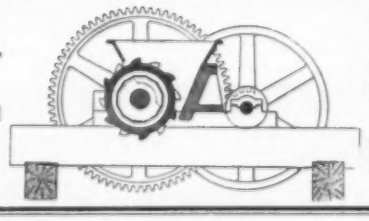
C. G. BUCHANAN, Consulting Engineer, Department Crushing and Concentrating Machinery. 141 Liberty Street, New York, U. S. A.

Roll Crusher for Ore and Rock Phosphate.

CAPACITY: 5 to 50 tons per hour.

For Coarse and Medium Fine Product.

Write for prices.



Single or Double Roll Crushers, Ore Washers, Jigs, Elevators, Conveyors, &c

McLanahan-Stone Machine Co.

HOLLIDAYSBURG, PA

If You are desirous of Saving Money examine

The Sackett Pulverizer

It is the most perfect machine yet devised for milling acid phosphate and manipulating fertilizers. It economizes TIME, POWER AND MONEY.

Our Patent Mixer POSSESSES MERIT. Also Manufacturer of Agitating Screens, the principle of which is to overcome the friction of the material while passing over the wire cloth as it does in ordinary screens.

MANUFACTURED BY

A. J. SACKETT, Baltimore, Md., U.S.A.

Write for descriptive leaflets.

PHOSPHATE MACHINERY and SUPPLIES.

Engines, Boilers, Saw Mills.

Shafting, Hangers, Wood Split Pulleys, Steam Pumps, Centrifugal Pumps, Steel Rails, Spikes and Fastenings, a Full Line of Railroad Supplies, and a Full Line of Bar Iron, Iron Pipe, Valves, Fittings, Rubber and Leather Belts.

Agents for CUMMER'S DRYER.

Write for our large Illustrated Catalogue. THE CAMERON & BARKLEY CO., Charleston, S. C.

The Mecklenburg Iron Works

will be glad to answer all correspondence leading to business from parties who need or expect to need machinery for handling Gold, Iron or Cotton, as they have been

M. I. W.

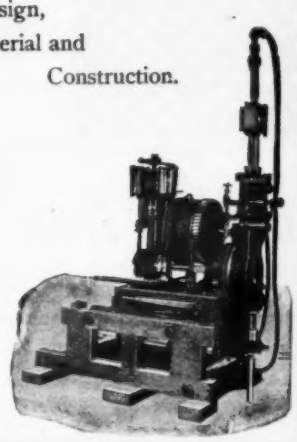
manufacturing such machinery for thirty years, and are situated so as to give entire satisfaction.

Their address is

CHARLOTTE, N. C.

Diamond Drills, Rock Drills, Channelers.

Perfect in Design, Material and Construction.



Sullivan Machinery Co.

135 Adams Street, CHICAGO.

Eastern Office and Works: CLAREMONT, N. H.

NEW YORK: 71 Broadway.
PITTSBURG: 339 5th Ave.
DENVER: 431-17th Street.
SPOKANE: S. 101 Howard St.

Write for Catalogue D.

ROCK DRILLS AND DRILL MOUNTINGS.

Electrical Blasting Apparatus.

The John M. Rogers

Boat, Gauge and Drill Works,

GLOUCESTER CITY, N. J., U. S. A.

ROCK DRILLS AND AIR COMPRESSORS

Which Pay the User.

RAND DRILL CO.

128 Broadway, N. Y.

Mining Drills.

SEND FOR NEW CATALOG.

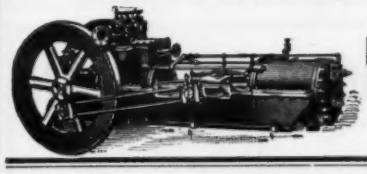
WE manufacture Hand and Air Drills of every known description for boring **Coal, Rock, Slate, Fire Clay, Gypsum, Salt, etc.**

HOWELL'S MINING DRILL CO., Plymouth, Pa.

Subscribe to the Manufacturers' Record.

Simplest and Most Economical

ROCK DRILLS,



AIR COMPRESSORS,

of the Most Improved TYPES.

SOLE AGENTS FOR THE

Kennedy Patent Air Lift.

McKIERNAN DRILL CO.

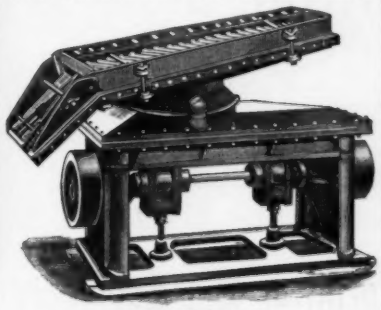
120 Liberty St., New York.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.

MINE

OPERATORS OWNERS

Your Chief Aim is to Save Your Values.



WE TREAT

GOLD	SILVER	LEAD
ZINC	TIN	COPPER

and all other kinds of

MINERAL BEARING ORES.

We have the Best Value Saving Record for Perfect Concentration in America. We sell all kinds of Mining Machinery suitable to Milling Ores

Without the Use of Water.

Address for Particulars,

General Concentrates Co.

American Exchange National Bank Building,

NEW YORK CITY.

.. THE ..

GRIFFIN MILL

IS NOW USED BY OVER **50** OF THE LARGEST

Portland Cement Manufacturers in the world.

For the highest references and illustrated catalogue giving full description, address

BRADLEY PULVERIZER COMPANY,

92 State St., Boston, Mass.

CARBONS

(Black Diamonds.)

FOR

DIAMOND DRILLS

and all mechanical purposes.

THEODOR LEXOW, Importer,

12 to 16 John St., near Broadway, NEW YORK.

HENRY DEMMERT.

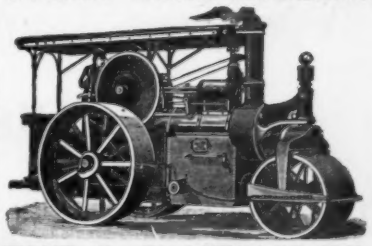
The Scientific Attrition Mill,

For Millers and Elevator Men.

WRITE US

THE FOOS MFG. CO., SPRINGFIELD, O.

STEAM ROAD ROLLERS



THE O. S. KELLY CO.

SPRINGFIELD, O.

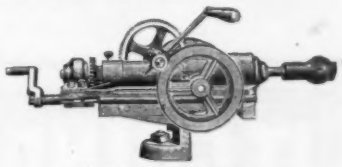
NOT AN EXPERIMENT—In General Use Throughout the World.

"Runs Like Clock Work"

MR. J. D. KAZER, of Hecla, Wyoming, has been using a

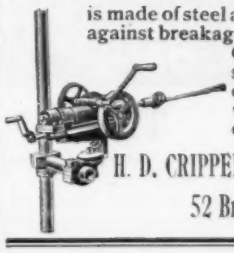
JACKSON Hand-Power DRILL

since last December. He is doing fine work with drill. The above is quoted from a recent letter written by him regarding drill.



Write for 1901 Catalogue.

JACKSON DRILL



is made of steel and guaranteed against breakage for two years. One man can set it upand operate it. Saves wages of three extra men.

H. D. CRIPPEN, Sole Mfr.,

52 Broadway, N. Y.

DIAMOND

For Prospecting Mineral Lands and Veins.

Take out a solid core, giving perfect sample of material penetrated.

MACHINES for any depths, and for steam, compressed air, hand or horse power.

SEND FOR CATALOGUE.

AMERICAN DIAMOND ROCK DRILL CO.

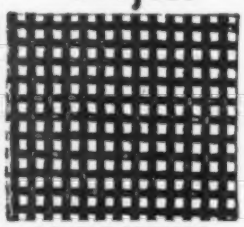
120 Liberty St., NEW YORK.

ROCK DRILLS

The Crown Dryer is the Best for Bricks.

THE CROWN DRYER CO.
NEW ENGLAND BUILDING,
Cleveland, Ohio.

"The Perfect"



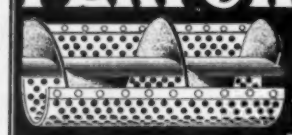
DOUBLE CRIMPED WIRE CLOTH.

FOR Phosphates

THE LUDLOW-SAYLOR WIRE COMPANY, St. Louis, Mo.

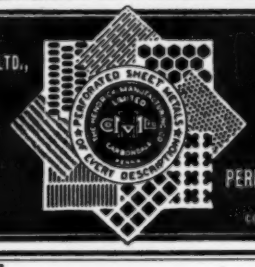
W. B. BUCK, Agent, 100 W Fayette St., Baltimore, Md.

PERFORATED METAL



FOR RICE MILLS. SUGAR WORKS. PHOSPHATE MINES.
THE ROBT. AITCHISON PERFORATED METAL CO.
CONVEYOR LINING 303 305 DEARBORN ST. CHICAGO ILL.

THE HENDRICK MFG. CO., LTD., CARBONDALE, PA.



PERFORATED SHEET METALS FOR SCREENING COAL, COKE, ORE AND ROCK

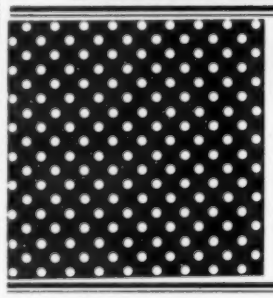
Crushing and Grinding Machinery.

Crushers, Dryers, Rotary Kilns. Pulverizing Machinery for all Materials. Sectional, Plain and Continuous Feed and Discharge Cylinders.

Tube Mills, Grit Mills, Ball Mills. Chaser Mills. Porcelain Linings for all sizes in stock. FLINT PEBBLES.

Complete Equipment Furnished for Cement Manufacturing Plants, Etc.

WEST PULVERIZING MACHINE CO.
ST. PAUL BUILDING, 220 BROADWAY, NEW YORK.



Perforated Metals

ALL KINDS FOR EVERY PURPOSE.

Cotton Seed Oil Mills, Phosphate Mills. Centrifugal Machine and Filter Press Plates a Specialty.

CHAS. MUNDT & SONS, Mfrs.
88 and 90 Walker St., NEW YORK.

Mining, Crushing, Conveying and Milling Machinery.

E. A. Blanton, Jr.

Philadelphia Bourse, Philada., Pa., U. S. A.

'PHONE 45-13.

H. C. LARRABEE. JOHN C. MURPHY.

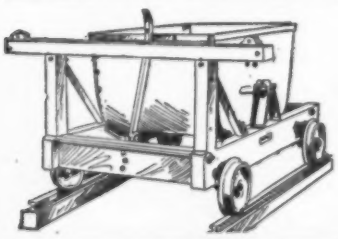
Caroline Iron Works, Cor. Caroline and Lancaster Streets, BALTIMORE, MD.

Johnson Patent Pyrites Burner, Lump Furnaces, Acid Eggs, Chemical Iron Supplies. WRITE FOR PRICES.

ORE, WASHERS, PHOSPHATE.

TRAM CAR WHEELS AND AXLES, Both Plain and Loose.

THE GEORGE FOUNDRY & MACHINE WORKS, ROME, GA.



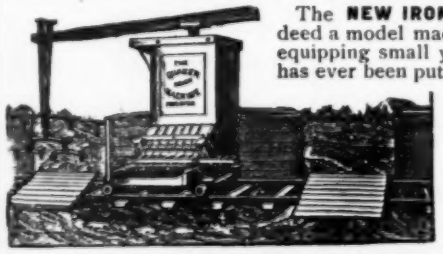
WALKER & ELLIOTT,
MANUFACTURERS OF
Fertilizer Mill Machinery.
Complete Plants Furnished and Erected.
WILMINGTON, DEL.
CRUSHING AND GRINDING MACHINERY.

When in need of LEAD PIPE OR SHEET LEAD

For Sulphuric Acid Chambers

Send your orders to The JAMES ROBERTSON MANUFACTURING CO., Baltimore, Md.

IT WILL PAY YOU TO SEE MY CATALOGUE BEFORE PLACING AN ORDER ELSEWHERE.



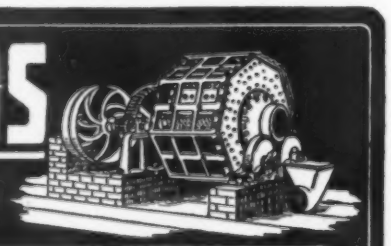
The NEW IRON HORSE-POWER QUAKER is indeed a model machine; it is the best machine for equipping small yards at a moderate expense that has ever been put upon the market. It is built for the attachment of steam gearing whenever desired. It turns out the very best quality of Brick.

Capacity 15,000 to 18,000 Per Day.

Send for New Catalogue.

JAMES W. HENSLEY, Indianapolis, Ind.

IT GRINDS



THE SMIDTH BALLMILL

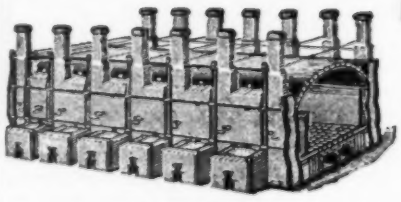
THE STANDARD

for grinding cement-rock, clinker, ore, etc. Simple, durable, efficient. Enormous grinding surface. Uniform output. We also make the celebrated Davidsen Patent Tubemill, and are always ready to prepare plans or submit estimates regarding any grinding plant or equipment.

WRITE FOR CATALOGS.

COPENHAGEN. Vestergade 29K. F. L. Smidth & Co. Engineers, 66 MAIDEN LANE, N.Y. LONDON. 9 Bridge St. S.W.

BRICK KILNS



For Burning Paving Brick, Dry Press Brick, Sewer Pipe, Terra Cotta and All kinds of Claywares.

M. M. BUSHONG, - PHOENIXVILLE, PA.

THE BAILEY-LEBBY CO.

Fertilizer and Phosphate Machinery a Specialty.

COMPLETE STEAM AND AUTOMATIC SPRINKLER PLANTS FOR COTTON MILLS.

Railroad and Mill Supplies, Engines, Boilers, Saw, Corn and Cane Mills. Rubber and Leather Belting, Hose, Packings, Pipe Fittings and Brass Goods, Wood Pulleys, Shafting and Hangers. A full stock of Plumbing Goods on hand. Lowest prices. Prompt shipments. Illustrated Catalogue furnished upon application.

Try the B.-L. Co. Anti-Friction Babbitt Metal, the BEST for HIGH-SPEED machinery.

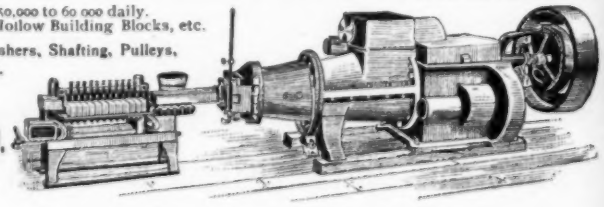
CHARLESTON, S. C.

OHIO BRICK and TILE MACHINES Unequaled for BUILDING, PAVING and FIRE BRICK.

Six sizes. Capacity 50,000 to 60 000 daily. Drain Tile, Hollow Building Blocks, etc.

Pug Mills, Clay Crushers, Shafting, Pulleys, Belting, Castings.

Send for Catalogue.



E. M. FREESE & CO. Galion, Ohio, U.S.A.

CARS

MINING, LOGGING, PLANTATION, CONTRACTORS, SUGAR CANE and SMALL CARS OF ALL KINDS. Wheels, Axles, Irons, &c.

Send for Catalogue. PEACOCK IRON WORKS, Selma, Ala.

Painting with a

Cyclo Painting Machine

reduces the cost of application to a minimum. The Paint is delivered on the surface in a fine vapor-like spray that enters and fills every crevice.

We guarantee the machine for strength, simplicity and efficiency for applying

Indeliblo

Cold

Water

Paint,

which is fireproof, washable and weatherproof, and made for both exterior and interior use. It is made in seventeen colors and white, and it will not scale or wash off.

We do not do the painting, but can supply you with the best materials at lowest prices. Catalogues, Color Cards, etc., from the manufacturers.

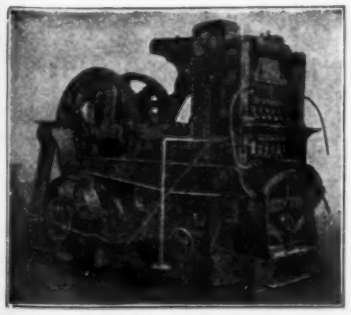
The Muralo Co., New Brighton, Borough of Richmond, N. Y.

IF YOU WANT TO KNOW

Anything about the South, about its resources, the progress of its development, the establishment and growth of new enterprises, you can find it all in the MANUFACTURERS' RECORD, and only there There is no other medium that will keep you so well posted about anything that pertains to the South.

The MANUFACTURERS' RECORD is published weekly, and will be mailed to you one year for Four dollars, six months for Two dollars or three months for One dollar. Sample copies free.

BALTIMORE, MD.



THE FERNHOLTZ BRICK MACHINERY CO.

MANUFACTURERS OF

The Fernholtz Improved Brick Press
The Fernholtz Patent Pulverizer,
The Fernholtz Clay Mixer.
Dealers in Brick Yard Supplies.

For further information address

THE FERNHOLTZ BRICK MACHINERY CO.
1214 Poplar St.,
ST. LOUIS, MO., U. S. A

BRICK and CLAY-WORKING Machinery,

Hand or Power. We can supply anything needed in this line.

GEORGE CARNELL, 1819-1821 Germantown Ave. PHILADELPHIA, PA.

SEND FOR CATALOGUE.

FIRST AID TO INJURED ROOFS

Ruberoid Roofing.
(TRADE MARK)

When repairing your roofs use Ruberoid. (Trade Mark) Prepare for rain and heat or cold by laying a roofing that is proof against these elements. To the average roofing, heat is as destructive as cold. Ruberoid (Trade Mark) is equally serviceable under either condition. Contains no tar, paper or asphaltum. Will not melt, rot, or tear. Will not run under heat, clog up the gutters or stain the sides of your buildings. Easily laid. Elastic, strong and extremely durable. When you want a roofing that will last, try Ruberoid. (Trade Mark) It has proven its quality.

THE STANDARD PAINT Co
100 William Street,
NEW YORK.
Chicago Office - 189 Fifth Ave.

STEEL BUILDINGS,
SHEET IRON WORK,
GALVANIZED IRON WORK,
SHEET COPPER WORK,
DESIGN AND CONSTRUCT GAS PLANTS, CANE AND BEET SUGAR PLANTS,

ORNAMENTAL CAST AND WROUGHT IRON WORK,
STAIRWAYS, BALCONIES AND ROOFS,
ELEVATORS, GAS HOLDERS AND TANKS.

BARTLETT, HAYWARD & CO., BALTIMORE, MD.

The Strongest and Most Economical Mortar Colors in the Market.

RED, BROWN, BUFF AND BLACK.

One-half the amount of our MORTAR COLORS will do the work of any other and they are unsurpassed in STRENGTH, FINENESS and BODY. Write for samples and quotations.

CHATTANOOGA PAINT CO., CHATTANOOGA, TENN.

We manufacture a superior grade of RED OXIDE OF IRON PAINT for railroad cars, bridges, barns, fences, etc. Sample on application.

Patent applied for.

The Best and Cheapest

VENTILATOR

MADE BY

DOWMAN MFG. CO.

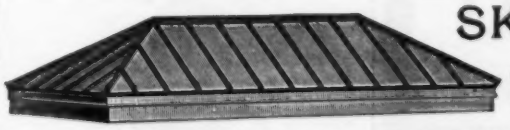
CONTRACTORS FOR

TIN AND SLATE ROOFING, GALV. IRON CORNICE, METAL SKYLIGHTS, STEEL CEILING AND HOT AIR FURNACES.

ATLANTA, GA.

THE HIGHEST DEVELOPMENT IN THE ART OF BRICK MAKING is represented in our XX machine, as here shown, fitted with single column, end cut with sander. Length 42 feet. Capacity from 3,500 to 5,000 per hour. Complete line down to 6,000 capacity per day. Write for prices.

J. C. STEELE & SONS, STATESVILLE, N. C.



SKYLIGHTS

OF

Galvanized Iron and Copper.
Metallic Fire-proof Window Frames and Sashes.

E. B. BADGER & SONS CO., 63-69 Pitts St., Boston, Mass.

MAGNITE

J. A. & W. BIRD & CO.,
BOSTON, MASS.

NATIONAL

ROOFING & SUPPLY CO.

LOUISVILLE, KY.

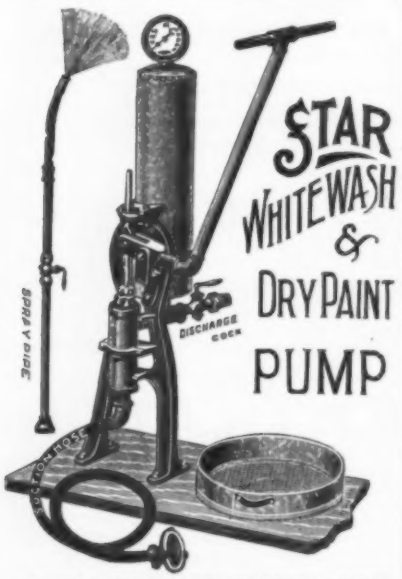
Gravel Roofers.
Cement and Asphalt Pavers.
Building Papers.
Two and Three-Ply Ready Roofing.

Prepared Gravel and Slag Roofing

As prepared and applied by our specifications, will give you a perfect roof covering for all your buildings. Compare our roofings with others.
Samples and Catalog for the asking.

Armitage Mfg. Co., Richmond, Va.

SPECIALTIES.—2 and 3-ply Roofing, Insulating, Building and Sheathing Papers, Asphaltum, Pitch, Roof Paints, etc.



BINK'S DRY NON-FLAME PAINT.

THE STAR BRASS WORKS,
67-69 S. Canal Street, CHICAGO, ILL.
Send for Circulars and Prices.

ZANZIBAR
ANTI-RUST
PAINT
Garfield Paint Co.,
CLEVELAND, O.

Don't put a Roof on anything

Until you get Samples and Prices of our

Portable Asphalt Gravel Roofing.

STOWELL MFG. CO.
JERSEY CITY, N. J.
114-134 Culver Ave.

It will leave money in your pockets

WATCH

for our advertisement next week, but if you want any roofing in the meantime, write us.

ASPHALT READY ROOFING CO.
136 Water Street, NEW YORK.

The Geo. A. Robinson Contracting Company.

Composition and Ready Roofing, etc.
Artificial Stone or any kinds of Paving, etc.

Give us a chance to submit you figures anywhere in this district, either large or small jobs.

110 St. Francis St., MOBILE, ALA.

HOLLOW METAL
Window Frames and Sash,
(H. Collier Smith's Patents),
GLAZED WITH WIRE GLASS

Are Absolutely

Fire Proof

BETTER THAN CLOSED SHUTTERS.
SEND FOR CATALOGUE "C."

They are indorsed by Fire Underwriters and supplant fire shutters wherever advocated.

THE SMITH-WARREN CO.
143 Federal St., Boston, Mass.

FOR OUR PUTTYLESS STEEL SKYLIGHT Engineers and Architects Specify

"REX SYSTEM"

(PATENTED)

The only system where the effects of expansion are overcome. The only permanently watertight system (guaranteed). Be convinced of its low cost and send for estimate and detail drawings.

NATIONAL SKYLIGHT & CONSTRUCTION CO.
Horticultural Architects and Builders. Structural Iron Work. 120 LIBERTY ST., NEW YORK.

High Grade
Metal, Slate and Gravel Roofing
Covering Buildings of Permanent Character.

Lowest Figures. Prompt Estimates.

COLUMBIA ROOF & PAVING CO.,
COLUMBIA, S. C.
BRANCH:
CHARLOTTE ROOF & PAVING CO.

STATE CAPITOL BUILDING, COLUMBIA, S. C.

Metal Work and Asphalt Gravel Roofing done by us. A few other contracts, covering of which is Felt and Gravel Roofing and all Metal Work.

Union Passenger Station and Depot, Savannah, Ga.
Union Passenger Station and Depot, Columbia, S. C.
Williamston Cotton Mills, Williamston, S. C.
Durham Traction Co., Durham, N. C.
Craddock Terry Shoe Factory, Lynchburg, Va.

AGENCY WARREN'S ANCHOR BRAND ASPHALT ROOFING MATERIALS.

Charlotte Roof & Paving Co., Charlotte, N. C.

Galvanized

Octagon Shingle.

We Guarantee Our Octagon Shingle

to be absolutely water-proof; to last double the time the same metal would put in the old way, and to be one of the best roofing coverings made. In use on more buildings than any other metal shingle. See our Catalogue E—thoroughly explanatory.

MONTROSS METAL SHINGLE CO., CAMDEN, N. J.

OWING to the fact that we manufacture our own oil, and are satisfied with one price, we are in a position to quote astonishingly low prices on all paints, pastes and oil.

We will be pleased to explain further the merits of our goods, and forward Color Cards, Booklets, etc., upon request.

Representatives Wanted. THE COLONIAL PAINT & VARNISH CO., Cleveland, O.

MINERAL WOOL
FIRE, SOUND AND VERMIN PROOF INSULATOR.
Samples and Circulars Free.
U. S. MINERAL WOOL CO., 143 Liberty St., NEW YORK.

GARRETT'S RED ROPE PAPER.

If you are thinking of building a Tobacco Barn why not line it with a good quality of paper, one that will outlast the building. Our Red Rope Manilla Paper is positively the strongest and best paper made for this purpose.

C. S. GARRETT & SON, Paper Makers,
12 and 14 Decatur Street, PHILADELPHIA.

It's the Whitest White Made.

If you use it on the walls and ceilings of your mill or factory, the increase in light will more than pay for its cost. Write for prices.

It's Fire Proof Too,

A point worth consideration by every thinking mill operator.

It's a Paint,

not a Kalsomine, although mixed with cold water.

Will Not Rub Off,

neither will it flake nor peel. Can't knock it off with a hammer.

Samples and Color Cards Free.

FRANK S. DE RONDE COMPANY,

SOLE MANUFACTURERS,

46 Cliff St., New York.

Philadelphia. New York. Baltimore. Scranton. Reading.

1852 1901

Warren-Ehret Company

Manufacturers and Patentees

Ehrets' Slag Roofing.

Actinolite Tile Roofing.

GUARANTEED TEN (10) YEARS.

Acid, Gas and Fire-Proof.

1105 Atlantic Trust Building,

Baltimore, Md.

Aquarine A Cold-Water ...Paint...

A dry powder, which being mixed with cold water forms a paint suitable for exterior or interior use. Specially adapted for painting

Mills, Warehouses, Barns, Fences, Farm Houses, &c., at one-third cost of oil paint.

MADE IN WHITE AND ALL COLORS.

Highest Award Paris Exposition.

Muzzy Bros., Paterson, N. J.

Agents in Southern States: Smith-Courtney Co., Richmond, Va. E. Van Winkle Gin & Mch. Co., Atlanta, Ga. Livermore Iron & Mch. Works, Memphis, Tenn. Buehler-Phelan Pt. Co., St. Louis, Mo.

HEARTLEY MACHINE, VARIETY, IRON & TOOL WORKS.

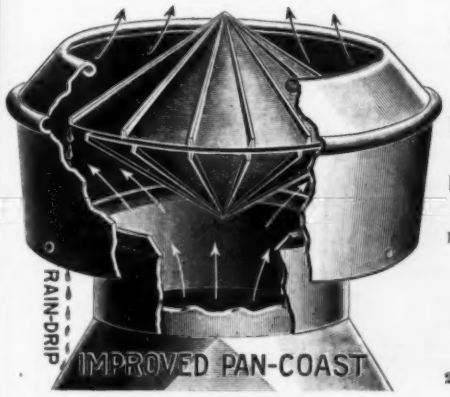
Mfrs. of { **Heartley's Steel Truss Brace Eave Trough Hanger.** Saves 4 lbs. of solder and one-half day's labor on each gross used. We also make the Baker & Woodruff Hangers, Conductor Hooks, Ice Tongs and Tools. Special Machinery and Tools for patent specialties and novelties. Bicycle and Metal Wheel Tools.

Power and Hand Punching and Shearing Machinery. Presses, Punches, Dies and Tools for sheet-metal stamping and forming, etc.

GEO. W. HEARTLEY, Prop., Jobber in Eaves Trough, Conductor Pipe and Tinners' Trimmings. 901, 3, 5 Water St., TOLEDO, O., U.S.A.

No solder is required to fasten the Cross Bar to this Eaves Trough.

Always in Season.



ABSOLUTELY STORM PROOF.

ALWAYS VENTILATING—

Day and Night, Rain or Shine.

Improved Design that never leak.

Improved Braces that never break.

EXHAUSTING MORE AIR THAN ANY OTHER VENTILATOR MADE.

Write for Prices.

Pancoast International Ventilator Co.

223 and 225 South Fifth Street, Phi'adelphia.

For PAINTING MILLS, FACTORIES AND WORKSHOPS

USE ONLY PAINTS BASED ON

ZINC WHITE.

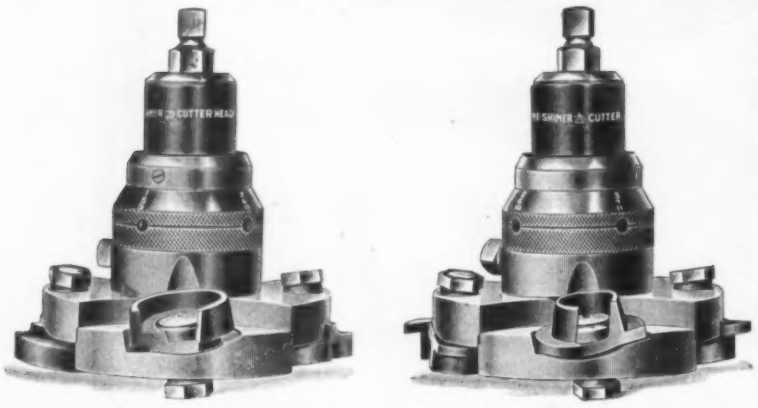
A pamphlet, "The Paint Question," will tell you about it. Send TO US for one. { The New Jersey Zinc Co., Empire Bldg., 71 Bdwy., New York.

ROOFING

WARREN CHEMICAL & MFG. CO.
81-83 FULTON ST., NEW YORK.

Interchangeable Cutter Head Practice

IS NOT COMPLETE WITHOUT



The Shimer Cutter Head Expansion

To accommodate the cut of the Bits to the kind and condition of the woody fibre as you find it in Oak, Pine and Poplar—dry, half dry or just as you get it from the log.

Wood that is soft or green will not go into the cut with the same resistance as the wood that is dry and hard, therefore, the same set of Bits will not cut the tongue and the groove to the same fit in Oak as in Pine, or in green as in dry lumber, neither will the cut of a newly sharpened set of Bits make the tongue and the groove exactly like that which they will cut when they are dulled.

Therefore, the Importance of The Shimer Cutter Head Expansion

To quickly right up th se little differences *without taking the Cutter Heads off the Spindles.* It pays to use the best Send for our 1901 Catalogue, No. 23.

Address

Samuel J. Shimer & Sons,
MILTON, Pennsylvania.

TREVOR MFG. CO., Lockport, N. Y.

Successors to TREVOR & CO.

MANUFACTURERS OF

SHINGLE, HEADING AND STAVE Machinery

Improved Crosett Stave Cutter.

HEADING SAWING MACHINES,
HEADING TURNERS,

Heading Jointers,
Veneer Cutting Machines,
Stave Equalizers.

Stave Cutters,

Shingle Jointers, Shingle Sawing Machines, Drag Saw Machines.

HANDLE MACHINERY

Lathes for Turning Handles for Brooms, Mops, Forks, Hoes, Axes, Picks, Hammers, Cant Hooks and for Ball Bats, Peavy Stocks, Pike Poles, Spokes, &c.

If you want Machinery for Staves, Heading, Shingles or Veneer Cutting send for our catalogue "A." If you want Handle Machinery send for Catalogue "B." Please say where you saw this advertisement.

Boston Blower Co.

HYDE PARK, MASS.

Fans and Exhausters,
Direct Connected,
Electric & Steam Outfits,
Dry Kilns,
Hot Blast Heating Apparatus.

HENCH & DROMGOLD'S

SAWMILL AND ENGINES

A wonderful improvement in **Friction Feeds** and **Gig-Back.** Back motion of Carriage **3 times** as fast as any other in the market. **Friction Clutch Feed,** causing all the feed gearing to stand still while backing; **great saving in power and wear.** Catalogue and prices free. Also **Spring Harrows, Cultivators, Corn Planters, Shellers,** etc. *Mention this paper.*

HENCH & DROMGOLD, Mfrs., York Pa.

MILL COGS.

Rock Maple Cogs on shortest possible notice. We make Cogs with blank head to be spaced and dressed after being driven; but make a **specialty of ready dressed** cogs, which are ready to run the moment driven and keyed. Send for circular L.

THE N. P. BOWSHER CO., South Bend, Ind.

Saw Mill Men

INCREASE YOUR OUTPUT.

A Soule Steam Feed will do the work, and cost little. Will pay for itself quickly.
Write for special prices.

SOULE STEAM FEED WORKS,
Send for Catalogue "M." MERIDIAN, MISS

Standard and Special Wood-Working Machines

of all kinds for Sash, Door and Blind Factories, Planing Mills, Car Shops, Furniture Factories, &c. Send for Catalog and copy of THE MECHANIC.

H. B. SMITH MACHINE CO.

New York Store, 121 Liberty St. | SMITHVILLE, N. J. | Chicago Store, 65 S. Canal St.

We Manufacture a Full Line of

Cross Arm, Insulator Pin and Bracket, and Boring Machines, Etc.

CHATTANOOGA MACHINERY CO.
CHATTANOOGA, TENN.
Catalogue mailed free on application.

DuBois Band Saw Mills,

Carriages, Head Blocks,
Carriage Set Works,

Tubular Boilers.

Good work and satisfaction guaranteed.

DuBOIS IRON WORKS,
DuBOIS, PA.

DE LOACH MILL MFG. CO.

Manufacturers of

High-Grade Mill Machinery,

ATLANTA, GA., and NEW YORK, N. Y.

Plow Handle MACHINERY.

Write for Circular and Prices.

B. M. ROOT. YORK, PA.

BEACH'S

Sawing Machinery.

H. W. BEACH, MONTROSE, PA.

FRANKLIN S. MILES, 207 Quarry Street, PHILADELPHIA, PA.
ESTABLISHED 1860.

ALL KINDS OF
Machine Screws
Made to Order and Carried in Stock.
Write for Estimates.

KNIVES

For Wood-working Machinery.
PLANING MILL AND FURNITURE FACTORY SUPPLIES.
CHICAGO KNIFE WORKS, 177 S. Clinton St., CHICAGO, ILL.

CABLE "HEALD." P. O. BOX 202.

PRICE & HEALD,

Wholesale Dealers and Manufacturers

HARDWOODS AND POPLAR

Sawed or in the Log, for Domestic or Foreign Trade.

YARDS, LOCUST POINT. Office, Manufacturers' Record Building,
Branches, Grafton, W. Va; Bristol, Tenn. **BALTIMORE, MD.**

WIRT W. HALLAM, Macon, Ga.

LONG LEAF YELLOW PINE. BRIDGE TIMBERS, HEWN AND SAWN.

Car Timbers, rough or dressed. Heavy Flooring for slow burning construction. Elevator, Factory and Cotton Mill Bills Furnished Complete.

New Orleans Wood Preserving Works

Mississippi River and Lyon Street, New Orleans, Louisiana.

The latest improved plant for the manufacture and perfect treatment of Wood with Creosote Oil or other preservative. Direct shipping and rail connections to all points.

CORNELL BLOWERS AND EXHAUSTERS.

(Poole Patent)

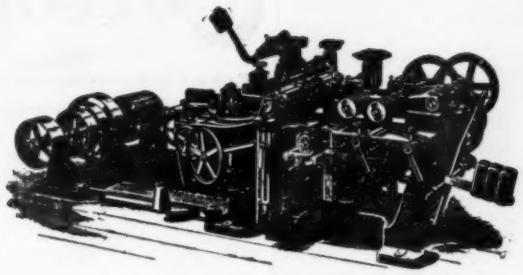
Gives greater volume and higher pressure with less horse power than any other type.

BUILT FOR EVERY SERVICE.

J. B. & J. M. CORNELL,
26th Street and 11th Avenue, **NEW YORK.**

Manufacturers Wood Working Machinery.

THIS MACHINE
IS THE
LATEST AND MOST IMPROVED
MOLDER
WHICH WE HAVE BUILT.



No. 14.—9" STANDARD FOUR-SIDED MOLDER.

"GRAND PRIX," PARIS, 1900.

Write us for Prices and Full Particulars.

TREATISE ON CARE OF BAND SAWS SENT FREE.

J. A. FAY & EGAN CO., 270-290 W. Front St., CINCINNATI, OHIO.

ATKINS SILVER STEEL SAWS

Highest Awards—Two Gold Medals at the Paris Exposition.

Guaranteed the Best Circular, Band, Gang, Crosscut, Hand, etc.

Write for Prices.

E. C. ATKINS & CO.

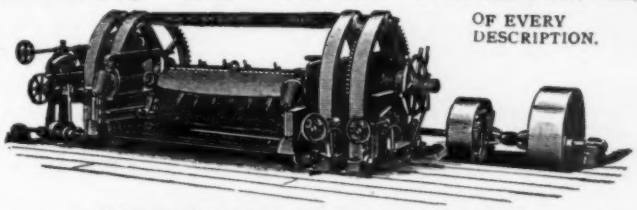
INDIANAPOLIS, IND.

MEMPHIS, TENN. ATLANTA, GA. PORTLAND, ORE. MINNEAPOLIS, MINN. NEW YORK CITY

We are Positively Headquarters for Strictly High Grade

VENEER CUTTING MACHINERY

OF EVERY DESCRIPTION.



YOU WANT THE BEST. WE HAVE IT.

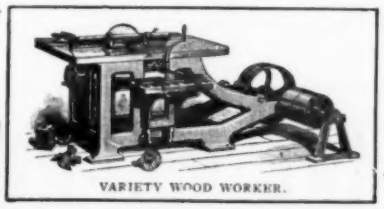
THE COE MFG. CO., Painesville, Ohio, U. S. A.

ESTABLISHED 1852.

CORDESMAN, MEYER & CO.

27, 29, 31 Central Avenue, CINCINNATI, OHIO.

FINE GRADES OF LATEST
WOOD WORKING Machinery
of Every Description.



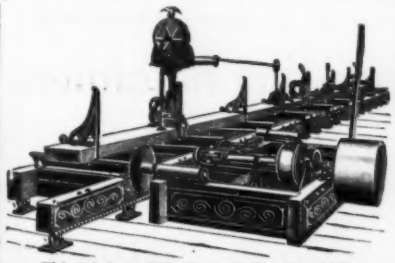
VARIETY WOOD WORKER.

For . . .
Planing Mills, Furniture and Chair Factories, Carriage, Wagon, Agricultural Works, Etc.

Write for Circulars and Prices.

SALEM IRON WORKS

Winston-Salem, N. C.



This cut shows Med. No. 5-50' Hege Saw Mill.

Saw Mills, Engines, Boilers, AND **Wood Working Machinery.**

We also manufacture the popular

HEACOCK-KING PAT. VARIABLE SAW MILL FEED WORKS.

Write for Circulars.

We Manufacture

Wood Working Machinery

Of All Kinds.

We shall be pleased to send you a copy of our new Catalog if you will write us.

THE FRANK MACHINERY CO., Buffalo, N. Y.

Selling Agents—O. L. Packard Machinery Co., Milwaukee, Wis. Curtis & Co. Mfg. Co., St. Louis, Mo. W. T. Adams Machine Co., Corinth, Miss. Greer Machinery Co., Knoxville, Tenn. Force & Briggs, Pittsburg, Pa. Curtis & Co. Mfg. Co., Chicago, Ill. Geo. E. Lum Machine & Supply Co., Birmingham, Ala. Northern Machinery Co., Minneapolis, Minn.

The Emerson Variable Belt Saw Mill Feed Works

SOLVES THE PROBLEM:

covering every good point; no frictions, toggles, latches or catches; balanced, compact, contained simple, durable, easiest to apply and easiest to operate. Made in six sizes; fits all mills; perfect variation, without movement of lever or parts. We defy all manner of devices for the purpose, and slap on trial everywhere at about one-third the cost of others as we send on y the frame studs, lever, etc. You get your Pulleys from your dealer. Parts packed in a neat box with full instructions and list of Pulleys wanted to complete the feed. On the market seven years. Not a complaint—Not a repair; no other feed with such a record or shipped on this plan. Our Reference—everyone who has owned, used or seen one. Our Claim—that they often double the output and always double profits. Address for further particulars,

FLORIDA IRON AND WOOD WORKS,

Manufacturers and Dealers in Machinery, New and Second Hand,

APOPKA, FLORIDA.

THE T. WILCE CO.

Polished Hardwood Flooring, Kiln Dried, Bored and End-Matched.

22d and Throop Streets, CHICAGO, ILL.

Maple Flooring for Cotton Mills, Factories, Warehouses and Buildings for like purposes a special feature.

Delivered Quotations made to any point in the United States. Write for prices and our descriptive Booklet.

PRICE & COMPANY, BALTIMORE, MD CLARKSBURG, W. Va.

Manufacturers of **Oak, etc., For Foreign and Domestic Markets.**

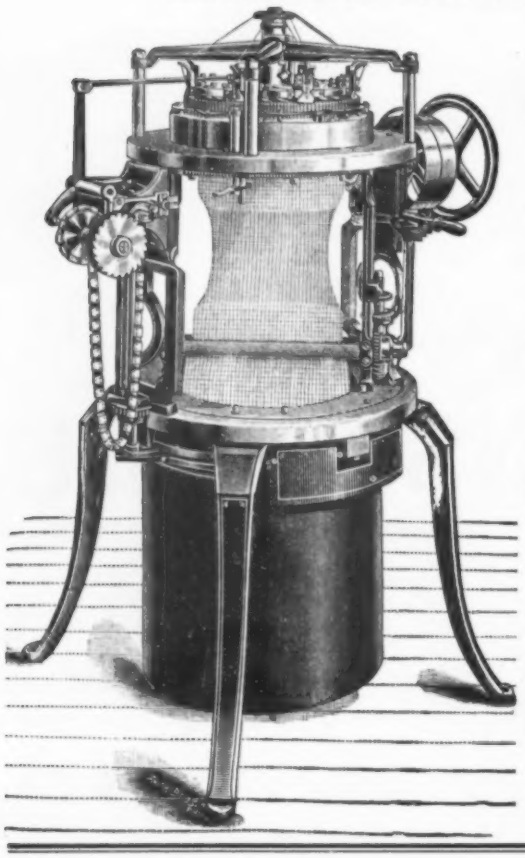
Agents for Pardee & Curtin Lumber Co's

BAND SAWED POPLAR, ASH, WALNUT, CHERRY, ETC.

McMICHAEL & WILDMAN MFG. CO.

Rib Knitting Machinery,

AUTOMATIC AND PLAIN.



FOR ALL CLASSES OF

RIBBED HOSIERY

AND

UNDERWEAR, COMBINATION SUITS, SWEATERS, Etc.

ESTABLISHED REPUTATION FOR

Largest Production, Best Quality Fabric, Durabilty, Economy of Operation.

Full particulars, description and samples furnished upon application to the

McMichael & Wildman Mfg. Co.,
NORRISTOWN, PENNA.

CHAMPION MACHINE CO.

BUILDERS OF HIGH GRADE

Rib Knitting Machines

FOR

UNDERWEAR AND HOSIERY,

Double and Single Thread Elastic Stitch Sewing and Trimming Machines, Crochet, Shell and Overseam Machines.

WORKS: N. W. Cor. American and Diamond Sts.

PHILADELPHIA.

Acme Automatic Knitting Machines

AND

Latch Needles.

FOR PARTICULARS ADDRESS

MAYO KNITTING MACHINE AND NEEDLE CO., FRANKLIN, N. H.

Philadelphia Office, Knickerbocker Bldg., Cor. 6th and Arch Sts.

See large advertisement first issue of each month.

LOWELL MACHINE SHOP,

LOWELL, MASS.

Cotton Machinery

We Manufacture Everything Required for the Complete Equipment of Cotton Mills.

Plans and Estimates Furnished on Application. Correspondence Solicited.

A NEW HOPPER

For The New Century.

The Hopper makes the Loom. Note the Size and the Simplicity.

THE DRAPER CO., Hopedale, Mass.

The Latest and Best

Looms, Harness Motions and Dobbies, Beaming, Spooling, Winding, Dyeing and Sizing Machinery, Power Transmitting Machinery, Freight Elevators.

FAIRMOUNT MACHINE COMPANY,
Twenty-Second and Wood Streets, - PHILADELPHIA, PA.

KNITTING MACHINERY.

SCOTT & WILLIAMS,
2079 E. Cumberland St.,
Write for Catalogue. PHILA., PA., U.S.A.

CARDS. DRAWING. SPINNING FRAMES.

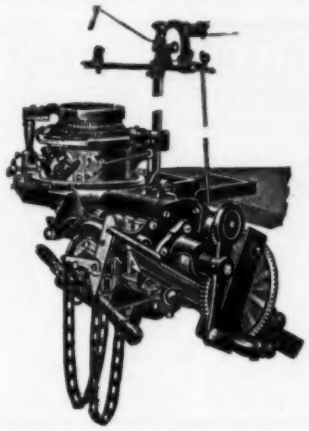
MASON MACHINE WORKS,
COTTON MACHINERY,
TAUNTON, MASS.

COMBERS. LAP MACHINES. MULES. LOOMS.

A. H. WASHBURN,
SOUTHERN AGENT
SACO & PETTEE MACHINE SHOPS
Everything needed for the Complete Equipment of COTTON MILLS to Manufacture
Yarns and Woven Fabrics of all kinds.
CHARLOTTE, NORTH CAROLINA.

KILBURN LINCOLN & CO., FALL RIVER, MASS.
LOOMS FOR PLAIN AND FANCY WEAVING.
The Kilburn-Lincoln High-Speed Loom is the result of over fifty years experience in Loom Building.

EXCELSIOR KNITTING MACHINE MFG. CO.
ALLENTOWN, PA.



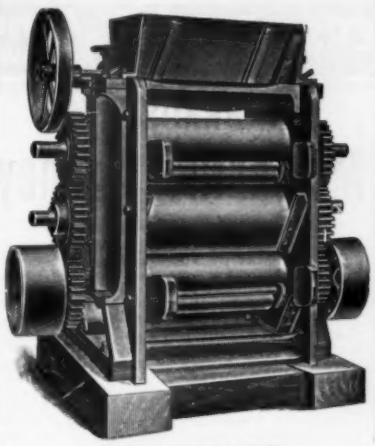
Builders of Excelsior ⅞ Automatic Knitters, adopted for Ladies' Plain Hose, Men's Half Hose or Footing Ribbed Hose.
Its production is greater than any ⅞ or full automatic machine now on the market.

Columbia Mill Supply Co.
COLUMBIA, S. C.
Special attention given estimates furnished on Complete Equipment Supplies for
COTTON and WOOLEN MILLS,
Automatic Sprinklers, Hot Water Heating, Steam and Ventilating Systems.
Send Specifications.
Large Stock. Prompt Shipments.
Office and Warerooms, 802 to 806 Gervais St.
W. H. GIBBES & CO.
Try "Columbia" Anti-Friction Metal.

NYE & TREDICK,
Circular Rib Knitting Machinery
For Underwear, Combination Suits, etc., Men's Underwear, Sweaters and Hosiery.
606 Arch Street, PHILADELPHIA, PA

SECOND-HAND
HYDRAULIC MACHINERY
FOR
Cotton Seed Oil Mills.
Address "AMERICAN,"
Monadnock Building, Chicago

Send for Catalogue of
Felton's Mill Brushes
S. A. FELTON & SON CO.
MANCHESTER, N. H.
Boston Office, 19 High Street.



BEST CHILLED
Iron Crushing Rolls
GEAR DRIVEN
Manufactured by
G. H. BUSHNELL PRESS CO.
THOMPSONVILLE, CONN.
U. S. A.

Lummus Cotton Ginning Machinery.
Undoubtedly the Best.
Agencies to responsible parties.
F. H. LUMMUS' SONS CO., Columbus, Ga.

HYDRAULIC PRESSES, JACKS, PUMPS, RIVETERS, PUNCHES, VALVES, Etc.
WATSON-STILLMAN CO.
204-210 E. 43d St. NEW YORK.
Send for Catalogue H H.

SAVOGRAN Cleans Wool Mill Floors, Anything.
INDIA ALKALI WORKS, Boston

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.

Linter For 1901.
Patent Automatic Feeder.
Adjustable Seed Board.
Adjustable Friction Drive for Float.
New Method Drive.
Patent Iron Cylinder.
Whole Saw Wood.
Whole Saw Iron Cylinder.
WE ALSO MAKE
Cotton Seed Hullers, Gummers, Saw Filing Machines, Cotton Gins.
CARVER COTTON GIN CO., EAST BRIDGEWATER, MASS.

The Textile Mill Supply Co.
CHARLOTTE, N. C.
"EVERYTHING IN MILL SUPPLIES."
Special Attention Given to the Complete Equipment of Supplies for Cotton Mills.

O. A. ROBBINS,
ENGINEER,
Machinery AND Equipment FOR Cotton Mills.
OFFICE: Cor. 4th and Tryon Sts., CHARLOTTE, N. C.

The BROWN LINTER.
It handles the most seed and produces the greatest quantity and best quality of lint.
THE BROWN COTTON GIN CO.
New London, Conn.

Apparatus for
Softening and Purifying WATER
For Bleacheries, Textile Mills, Sugar Houses, Paper Mills, and all other Industrial Uses.
For Particulars Address **Industrial Water Company,** 15 Wall Street New York

Cottonseed Oil Machinery.
(Not in any Combination or Trust.)
Modern Ginning Systems.
Write for Catalogue.
E. Van Winkle Gin & Machine Works,
Atlanta, Georgia, U. S. A.
Local Oil Mills and Ginneries Combined.

Cotton Oil & Fibre Co.
Southern Office & Works: Norfolk, Va.
Land Title Bld'g: Philadelphia, Pa.
Producers of
Crude and Refined Cotton Seed Oil,
Cotton Seed Cake, Hulls, Mixed Hulls, Linters, Etc.
Prime Cotton Seed Meal "Cofco" Brand.
Samples Free On Request. Net 100 lbs. Fully Decorticated.
Guaranteed Analysis:

Ammonia	Not Less Than 8.50 Per Cent.
Nitrogen	" " " 7 "
Protein	" " " 43 "
Crude Oil and Fat	" " 9 to 10 "

COTTON SEED OIL MACHINERY,
The Latest and Most Improved—manufactured by the
COLUMBUS MACHINERY CO., COLUMBUS, MISS.
Write for prices.

Mercerizing Machinery for Skein and Warp.
Pressed Steel Automatic Tenter Clip. Winding, Measuring and Folding Machinery. Special Machinery to Order.
PHILADELPHIA TEXTILE SPECIALTY MACHINE CO., - - - 500 N. 12th Street, PHILADELPHIA, PA

THE BEST COTTON OPENERS & LAPPERS. THE A. T. ATHERTON MACHINE CO
PAWTUCKET, R. I.

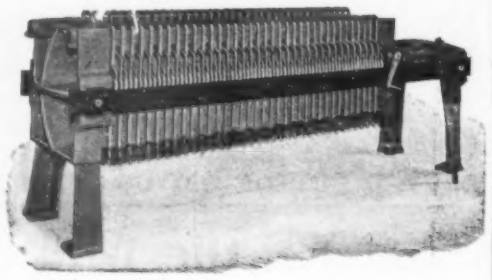
The "Johnson" Sugar Filter Press

Specially designed for Plantation Sugar Houses and Sugar Refineries.

Reduces the loss from fermentation and inversion to a minimum.
Insures an increased yield of crystalizable sugar.

We Build Special Presses for Cotton Seed Oil, Sugar House, Abattoir and all other Special Work.

JOHN JOHNSON & CO.
95-97 Liberty Street,
NEW YORK, U. S. A.
Works, Garwood, N. J.



THE BRADSTREET Mercantile Agency

WAS ESTABLISHED IN 1849,

Is the oldest and financially the strongest organization of its kind, working in one interest and under one management, with more capital invested in the business, and expends more money every year for the collection and dissemination of its information than any similar institution in the world. Its reports are considered in the light of a guide by both investors and those contemplating the granting of credit. In addition to a large corps of skilled employes, more than one hundred thousand correspondents contribute the result of their investigation and opinions. Subscriptions are annual and may commence at any time the subscriber elects. Details as to prices and terms will be furnished upon application.
CHARLES F. CLARK, President.
Baltimore Offices, Equitable Building.
EDWARD S. STROBHAR, Supt.

Cottonseed Oil Machinery.

Tobacco Cutting Machinery.

Brass Goods FOR ENGINE BUILDERS, STEAM, WATER AND GAS FITTERS.
Write for Catalogue.

BUCKEYE IRON & BRASS WORKS,
DAYTON, OHIO, U. S. A.

Threshers and Cleaners

For WHEAT, OATS and RICE.

The Simplest, Cheapest and Best Made.

Also COTTON-SEED OIL MILLS,
And HYDRAULIC COTTON PRESSES.

Information furnished upon application to

The Cardwell Machine Co., Richmond, Va.

Cotton Seed Meal Automatically Bagged.

We do it successfully. Our circulars tell how.

NEW ENGLAND AUTOMATIC WEIGHING MACHINE CO.
275 Congress Street, Boston, Mass.

Pan-American Route

Between CLEVELAND and BUFFALO.

STEAMERS CITY OF BUFFALO AND CITY OF ERIE.

Both together being without doubt, in all respects, the finest and fastest that are run in the interest of the traveling public in the United States.

TIME CARD—DAILY—APRIL 15th to DEC. 1st.

Leave Cleveland 8 p. m. Arrive Buffalo 6:30 a. m. | Leave Buffalo 8 p. m. Arrive Cleveland 6:30 a. m.

ADDITIONAL SERVICE DURING JULY AND AUGUST DAILY EXCEPT SUNDAY.

Leave Cleveland ..... 2:00 a. m. | Leave Buffalo ..... 2:00 a. m.
Arrive Buffalo ..... 8:00 p. m. | Arrive Cleveland ..... 8:00 p. m.
Leave Cleveland Tuesdays, Thursdays and Saturdays 8 p. m. Arrive Buffalo 6:30 a. m.
Leave Buffalo Mondays, Wednesdays and Fridays 8 p. m. Arrive Cleveland 6:30 a. m.

All Central Standard Time. Orchestra Accompanies Each Steamer.

Connections made at Buffalo with trains for all Eastern and Canadian points, at Cleveland for Detroit and all points West and Southwest.

Ask ticket agents for tickets via C. & B. Line. Send four cents for illustrated pamphlet. SPECIAL LOW RATES CLEVELAND TO BUFFALO AND NIAGARA FALLS EVERY SATURDAY NIGHT. ALSO BUFFALO TO CLEVELAND.

W. F. HERMAN, General Passenger Agent, Cleveland, O.

The American Cotton Oil Co.

MANUFACTURERS AND REFINERS.

COTTONSEED PRODUCTS....

Oil, Cake, Meal, Linters, Ashes, Hulls,

THE AMERICAN COTTON OIL COMPANY, 27 BEAVER ST., NEW YORK.
Cable Address, AMCOTOIL, New York.

ALDIGE REFINERY

THE UNION OIL CO. UNION BUTTER OIL NEW ORLEANS, LA.

THE AMERICAN COTTON OIL CO. SUN BRAND NEW YORK

THE AMERICAN COTTON OIL CO. MOON NEW YORK

THE AMERICAN COTTON OIL CO. PRIME SUMMER YELLOW NEW YORK

THE AMERICAN COTTON OIL CO. PRIME SUMMER WHITE NEW YORK

AMERICAN COTTON OIL CO. MINERS' OIL CINCINNATI

THE AMERICAN COTTON OIL CO. LILY SUMMER WHITE NEW YORK

Union Oil Co. PURE SALAD OIL Providence, R.I.

THE AMERICAN COTTON OIL CO. IXL COOKING OIL NEW YORK

PLANTERS NEW ORLEANS

BALTIMORE STEAM PACKET CO.

OLD AND RELIABLE

BAY LINE.

CARRYING U. S. MAIL.

Elegant Steamer Daily, except Sunday, from "BAY LINE" PIERS, 10-13 LIGHT STREET, at 6.30 P. M., for OLD POINT COMFORT, NORFOLK, PORTSMOUTH AND ALL POINTS SOUTH. Connect at Old Point Comfort, Va., with C. & O. R. R. for Richmond. Connect at Portsmouth with Seaboard Air Line, solid train Portsmouth to Atlanta. At Norfolk, connect with Atlantic Coast Line, Norfolk & Carolina, Norfolk & Southern and Norfolk & Western Railroads, and with Old Dominion Line for New Berne and Washington, N. C.

Meals on the European plan. Luxurious Staterooms, Electric Lights, Steam Heat. Berths Free. Reserve staterooms in advance at Bay Line Ticket Office, 103 East Baltimore Street; also at Albaugh's, 15 N. Charles St.

Telephone, C. & P. 1435; Maryland, Courtland 485.

EMMET BROWN, General Ticket Agent.
W. RANDALL, General Fgt. and Pass. Agt.
JOHN R. SHERWOOD, V.-P. and Gen. Mgr.

CHESAPEAKE STEAMSHIP COMPANY.

"CHESAPEAKE LINE."

Passenger steamers AUGUSTA and ATLANTA for Old Point Comfort and Norfolk, Va.

Steamers leave Baltimore daily (except Sunday) at 6.30 p. m., and arrive Old Point Comfort 6 a. m. and Norfolk 7 a. m., where connection is made with rail lines for all points South and Southwest.

"YORK RIVER LINE."

United States Mail and Passenger Steamers CHARLOTTE and BALTIMORE for West Point and Richmond, Va.

Steamers leave Baltimore daily at 5 P. M. from Piers 18 and 19 Light St. Wharf.

Through tickets to all points can be secured, baggage checked and staterooms reserved from the City Ticket Offices, Nos. 109, 120 and 127 East Baltimore Street, or the General Offices, 530 Light Street, Baltimore, Md.

MERCHANTS & MINERS'

Transportation Company's

STEAMSHIP LINES.

For BOSTON and the EAST—Every Tuesday, Thursday, Friday and Sunday at 6 P. M.

For PROVIDENCE and the EAST—Every Monday, Wednesday and Friday at 6 P. M.

For SAVANNAH and the SOUTH—Every Tuesday, Thursday and Saturday at 6 P. M.

For NEWPORT NEWS and NORFOLK—Daily, except Saturday, at 6 P. M.

Accommodations and Cuisine Unequalled. Freight handled with care and dispatch.

C. R. GILLINGHAM, Agent, Long Dock.
A. D. STEBBINS, A. T. M.
W. P. TURNER, G. P. A.
J. C. WHITNEY, T. M.
General Offices—214 E. GERMAN STREET.

EVERYTHING FOR THE PRINTER.

ELECTROTYPES AND NICKEL-TYPES.

THE ONLY NICKEL-TYPE FOUNDRY IN THE ENTIRE SOUTH.

WRITE US FOR PRICES.

SERVICE AND QUALITY THE BEST.

AMERICAN TYPE FOUNDERS CO., BALTIMORE, MD.

ATLANTIC TRANSPORT LINE.

NEW YORK, PHILADELPHIA and BALTIMORE to LONDON direct.

	Tons.		Tons.
Massachusetts,	7600	Minnesota,	5000
Manitoba,	7600	Maryland,	4250
Mobile,	7600	Missouri,	4250
Mohawk,	7600	Montana,	4250
Mississippi,	5500	Maine,	4150

ATLANTIC TRANSPORT CO.,

405-409 Water Street, Baltimore.

New York, 1 Broadway. Chicago, 234 La Salle st.
Phila., 511 Bourse. St. Louis, 307½ Pine st.
London, 108 Fenchurch st.

BOSTON & MAINE RAILROAD.

Lowest Rates.

Fast Train Service

BETWEEN

Boston and Chicago

St. Louis, St. Paul, Minneapolis and all points West, Northwest, Southwest.

Pullman Parlor or Sleeping Cars on All Through Trains.

For tickets and information apply at any principal ticket office of the Company.

D. J. FLANDERS,
Gen'l Pass. & Tkt. Agt.,
BOSTON.

BUYERS

of Machinery, Tools, Mining and Manufacturing Supplies, can find anything they need by referring to the advertising pages of the MANUFACTURERS' RECORD.

SELLERS

of anything that is required by Machinists, Foundrymen, Iron Manufacturers, Coal and Iron Ore Miners, Textile Manufacturers, Woodworkers and Artisans of every class can reach more customers through the MANUFACTURERS' RECORD than in any other way.

BALTIMORE, MD.

Finest Trains in Central States; Fast Time and Through Trains BETWEEN

CINCINNATI, INDIANAPOLIS, CHICAGO,

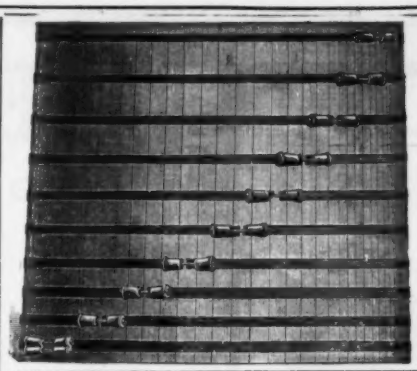
AND BETWEEN

Cincinnati, Dayton, Toledo, Detroit, for all Michigan and Canadian Points.

Vestibuled Trains, Cafe Dining Service, Compartment Sleepers. Agents of connecting roads will sell you tickets routing via C. H. & D. Ry.

D. G. EDWARDS, Passenger Traffic Manager, CINCINNATI, O.

CH&D MICHIGAN LINE



TANKS FOR

Factories, Mines, Paper Mills, Railroads, Chemical Manufacturers, Towns, etc., of

Louisiana Red Gulf Cypress.

Admittedly the most durable wood known. Impervious to heat, acids or chemicals.

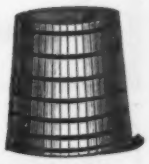
Send for Illustrated Catalogue.

W. E. CALDWELL CO.

3300 Brook Street, LOUISVILLE, KY.

Cedar and Cypress Vats,

Tanks, Dye Tubs, &c.



and everything in the shape of a Tank.

Our new plant, covering over two acres of ground, is in complete running order, and can serve you to any extent and with promptness.

G. WOOLFORD WOOD TANK MFG. COMPANY,

OFFICE, REAL ESTATE TRUST BUILDING,
S. E. Cor. Broad and Chestnut Streets.

Works, Darby, Pa., P. W. & B. R. R. PHILADELPHIA.

Corrugated Galvanized Steel

TANKS

FOR FUEL OIL, PETROLEUM OIL WELLS, FACTORIES, ETC.

Also CISTERNS for under or overground use. Our work guaranteed. Write

HARRY BROS. CO. 240 Pacific Ave., DALLAS, TEX. 231 Fannin St., BEAUMONT, TEX.

CYPRESS WATER TANKS,

Best in the world. Send for Catalogue. Write for delivered prices.

H. F. LEWIS & CO., Ltd.
316 Baronne St. NEW ORLEANS, LA.

Cleveland Terminal & Valley R. R.

"B. & O. System."

THROUGH TRAINS

CLEVELAND AND Cambridge, Marietta, Parkersburg, Washington, D. C. and Baltimore.

AND CONNECTIONS BETWEEN

J. T. JOHNSON, Gen'l Superintendent. J. E. GALBRAITH, Traffic Manager.

CLEVELAND, O.

The Cleveland, Lorain & Wheeling

RAILWAY.

SHORT and ONLY DIRECT LINE BETWEEN CLEVELAND, MEDINA, STERLING, WARWICK, MASSILLON, JUSTUS, CANAL DOVER, NEW PHILADELPHIA, UHRICHSVILLE, ST. CLAIRSVILLE, BRIDGEPORT, BELLAIRE and WHEELING.

DIRECT CONNECTIONS MADE AT CLEVELAND FOR NEW YORK, BOSTON, ALBANY and all points East, and at ELYRIA and LORAIN for points West.

W. R. WOODFORD, Gen. Mgr. M. G. CARREL, Gen. Pass. Agt.

PEN-MAR

Swept by Mountain Breezes.

This lovely resort is now at its best, and is a delightful place to while away a summer's day.

EXCURSIONS DAILY.

$1.00

Express leaves Hillen Station (Baltimore) 9.15 A. M., stopping at all city stations.

GET RID OF YOUR TANK TROUBLES BY GETTING AN UNLEAKABLE

CYPRESS TANK

We make every size and shape. Write for particulars, prices, etc.

G. M. DAVIS & SON,
PALATKA, FLORIDA.

GALVANIZED IRON STORAGE TANKS

From 10 gals. to 7,000 gals. Black iron tanks any size. GAS ENGINES from ½ H. P. up.

For particulars address

Clarendon Boiler Works,
N. Clarendon, Pa.
Mention this paper.

THE BALTIMORE ENGRAVING CO.

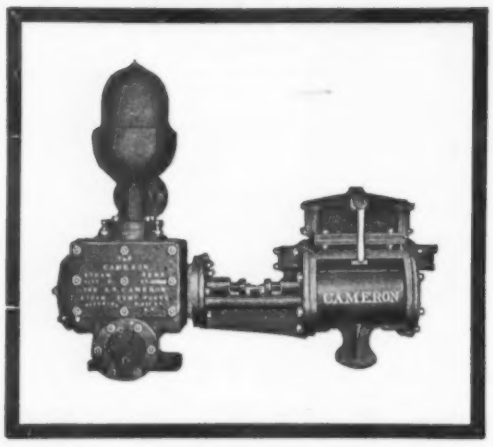
BALTIMORE MD.

HALF-TONES
ZINC CUTS & ELECTROTYPES
PROMPT DELIVERY GUARANTEED

R. S. DODSON, Proprietor. R. A. DODSON, Manager.

New Atlantic Hotel.

Rates, $2.50 to $4.00. NORFOLK, VA.



CAMERON STEAM PUMPS.

NO OUTSIDE VALVE GEAR.

Simple, Compact, Durable, Efficient, **FOR** Boiler Feeding, Mines, Refineries, Breweries, Tanneries, Irrigating, Fire Purposes, Railroads, Filling Tanks, etc.

Our New 112 Page Catalogue shows our different styles with full explanations. Sent FREE.

A. S. CAMERON STEAM PUMP WORKS, foot of East 23d St., NEW YORK CITY.

A DAM THAT WILL DAM

That is what every user of water-power wants and very few have. Most dams leak. "The Gravity Dam" is the name of a 78-page book on Dam Construction. It describes all kinds of dams that leak and break and tells why they leak and break. It also describes a dam that will neither leak, break nor wash out; and tells how it is made. **This Book Sent Free of Charge** to every present or prospective user of water-power who sends his address and five cents in stamps to pay postage, by

BEARDSLEY GRAVITY DAM AND CONSTRUCTION CO., Dam Builders and Hydraulic Surveyors, etc., ELKHART, IND.

CONDENSING OUTFITS
HORIZONTAL AND VERTICAL.
SURFACE CONDENSERS
VACUUM PUMPS
CENTRAL CONDENSERS

VERTICAL AIR PUMP.

HORIZONTAL AIR PUMP AND JET CONDENSER.

DEAN BROS. STEAM PUMP WORKS
INDIANAPOLIS, IND.
BOILER FEEDERS, FIRE PUMPS, SINGLE AND DUPLEX PUMPS.

Water Supply

For Towns, Cities, Mills and Industries of every kind. Well Systems and Air Lift Plants Installed Complete.

The BACON AIR LIFT CO.,
100 Broadway, NEW YORK.

Sole Owners and Manufacturers of the Simple and Compound BACON AIR LIFT PUMPS.

R. D. WOOD & CO.
400 Chestnut Street, PHILADELPHIA, PA.

PRINDLE **CENTRIFUGAL** PUMPS.

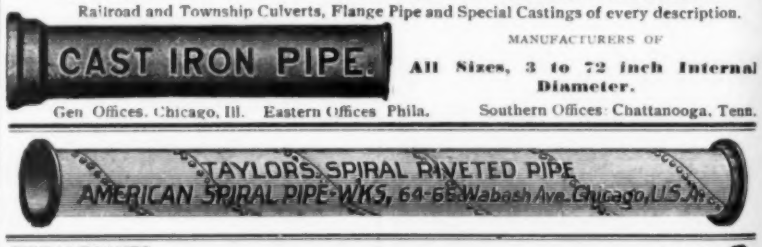
ALL SIZES. BELT DRIVEN AND DIRECT CONNECTED.

For Irrigation, Tanneries, Mine Drainage, Phosphate Mining, Circulating Water for Condensers, &c., &c.

CAST IRON PIPE

The Dimmick Pipe Co.
Makers of VALVES and HYDRANTS. Special Castings of Every Description,
Birmingham, Ala.
New York, 29 Broadway. Philadelphia, 1051 Drexel Bldg.
Chicago, 1200 Fisher Bldg. St. Louis, 20 Equitable Bldg.
San Francisco, 31 New Montgomery St. Pittsburg, Empire Bldg.
238 Equitable Bldg, Atlanta, Ga.

UNITED STATES CAST IRON PIPE & FOUNDRY COMPANY.
Railroad and Township Culverts, Flange Pipe and Special Castings of every description.



MANUFACTURERS OF
All Sizes, 3 to 72 inch Internal Diameter.
Gen Offices. Chicago, Ill. Eastern Offices Phila. Southern Offices Chattanooga, Tenn.

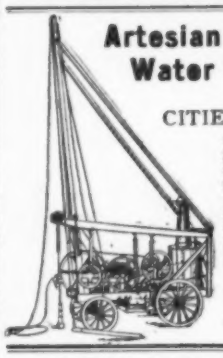
FIRE HYDRANTS. STOP VALVES. GENERAL FOUNDRY WORK.

THE GLAMORGAN PIPE & FOUNDRY CO. LYNCHBURG VA.

THE JOHN H. McGOWAN CO. CINCINNATI, OHIO. BRANCH RICHMOND VA.

PUMPING MACHINERY FOR EVERY SERVICE
SINGLE DUPLEX AND CRANK AND FLY WHEEL TYPES.

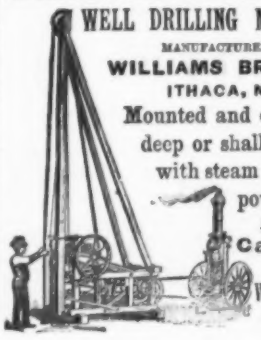
PERRY ANDREWS & BRO.
ARTESIAN AND OIL WELL CONTRACTORS AND DRILLERS.
Have had years of experience in Oil Well Drilling.
Porter Place, ATLANTA, GA.



Artesian Wells and Water Supply.
FOR
CITIES and TOWNS,
Breweries, Manufactories, Cemeteries, Farms, Residences.
Drilled Wells. Driven Wells.
F. M. GOULD,
3417 E. Clay St. Richmond, Va

THE NEW **Pulsometer** STEAM PUMP.

The Simplest, Cheapest, Most Efficient, Most Durable
FOR Shallow Mines, Coal Washing, Ore Washing, Dip Drainage, Contractors' Use.
Send for Catalogue "A."
PULSOMETER STEAM PUMP WORKS,
125 Greenwich St., NEW YORK.



WELL DRILLING MACHINERY,
MANUFACTURED BY
WILLIAMS BROTHERS,
ITHACA, N. Y.,
Mounted and on Sills, for deep or shallow wells, with steam or horse power.
Send for Catalogue.
ADDRESS
Williams Brothers
ITHACA, N. Y.

THE **COOK WELL CO.** ST. LOUIS, MO. U. S. A.
Cook's System of Wells for Cities, Towns, Villages, Railroads, Ice Plants, Breweries and Manufacturers.
Cook's Patent Brass Tube Well Strainer.
Cook's Deep Well Pumping Engines.
Estimates furnished upon application.
Write for Catalogue and Prices.

MASON GOVERNORS
SHOULD BE ATTACHED TO
FIRE & ELEVATOR PUMPS
TO INSURE PERFECT REGULATION
THE MASON REGULATOR CO.
BOSTON MASS. U.S.A.

THE GREAT **OHIO WELL DRILL!**

Drills the well and pumps out the cuttings of the Drill at each stroke. Drives the casing or drills a hole under it to let it follow. Tests the well without removing tools! Runs easier than any other and drops the tools faster! We also make machines and tools for boring large wells! Established over 35 years.
CIRCULARS FREE.
LOOMIS & NYMAN,
TIFFIN, OHIO.

THE PUMP THAT PUMPS **MYERS Pumps** Force, Tank, Lift, Spray, and all kinds of **Hay Tools**
Catalogue free.
F. E. MYERS & BRO., Ashland, Ohio.

SAMSON TURBINE

For Heads of 3 Feet and Upward
UPRIGHT and HORIZONTAL.
ADAPTED TO
COTTON MILLS AND POWER PLANTS.

SPECIAL FEATURES:
High Speed and Efficiency, Great Strength. Close Regulation and Steady Motion. Balanced Gates. Built for direct Couple. Belt or Rope Drive.
Write for pamphlet, stating your Head and Power required.

AUTOMATIC AND THROTTLING **ENGINES** PORTABLE AND STATIONARY **BOILERS**

Built in a variety of sizes. State kind of work and power required, and send for pamphlet H.

JAMES LEFFEL & CO., P. O. Box 103, **Springfield, Ohio, U. S. A.**

GOODSELL'S "98" PUMP PACKING

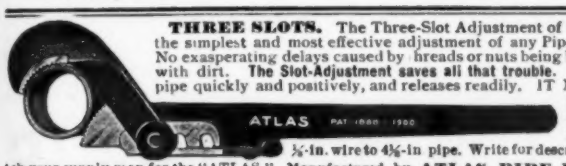
WAX END SEWED.

WEARING EDGE absolutely invincible against splitting. Cannot be separated in service. Equal to two and frequently four sets of best grade, fine Pump Packing; Suited for hot or cold service. All sizes in coils of 15 lineal feet. Used in United States NAVY.

GOODSELL PACKING CO.,
Sole Makers,
33 S. Canal St., CHICAGO, ILL.

TANKS. RIVETED Pipe.

Cirard, O. Cirard Boiler & Mfg. Co.



THREE SLOTS. The Three-Slot Adjustment of the Atlas Pipe Wrench is the simplest and most effective adjustment of any Pipe Wrench manufactured. No exasperating delays caused by threads or nuts being buried, rusted or clogged with dirt. **The Slot-Adjustment saves all that trouble.** The "ATLAS" grips the pipe quickly and positively, and releases readily. IT NEVER LOCKS.

Made in four sizes: 10-in., 18-in., 24-in. and 36-in., handling everything from ½-in. wire to 4½-in pipe. Write for descriptive folder and price list.

Ask your supply man for the "ATLAS." Manufactured by **ATLAS PIPE WRENCH O.,** Flood Bldg., San Francisco, Cal. 121 Liberty St., New York City.

THE MOFFATT IMPROVED
Double Acting
Pump and Heater
COMBINED.

This complete machine is a marvel of simplicity and strength, and is designed with extra workmanship so as to obtain the best results. It is highly recommended for all steam plants between 15 and 300 horse power. The heater and pump are also made separate.

Neat, compact, strong and powerful, and only takes up the same space as the single heater without the pump.

Our References: Many Satisfied customers.

Park Mfg. Co.
Charlotte, N. C.

The Cold Wave Fan.

Patent applied for

This is an up-to-date fan for up-to-date people. It weighs 5½ ounces, and is made of highest grade steel and brass. Handsomely nickel plated and is packed one in a cardboard box suitable for mailing.

The blades are adjustable, and the whole fan can be carried in the pocket without inconvenience.

It is operated by opening and closing the hand in the same manner as one would use an ordinary curling iron.

The blades revolve at the speed of 4,000 revolutions per minute and will throw a strong current of air as far as an electric fan of the same size.

PRICE BY MAIL, $1.50.

The Frantz-Gage Mfg. Co.
85 Fifth Avenue,
Manufacturers of METAL SPECIALTIES. CHICAGO, ILL.

DEEP WELL PUMPS,

Steam and Power.

Double and single acting Pumps of large capacity, for city and village water-works, mines and factories.

DOWNIE PUMP CO., Downieville, Pa.

Cabinet and **Builders' Hardware.**
Specialties in Iron.
WRIGHTSVILLE HARDWARE CO.
Wrightsville, Pa.

S. MORGAN SMITH CO., York, Pa.
Hydraulic Engineers,
Manufacturers of
McCORMICK TURBINES.
See illustrated ad. in last and next issues.

CONTRACTOR'S HAND PUMPS.

EDSON MFG. CO., BOSTON MASS.

THE Victor Turbine

Adopted By The Best
COTTON MILLS.

BUILT Upright or Horizontal—Single or in Pairs. We also build a full line of Gears, Pulleys and Power-Transmission Machinery of All Kinds.

SOME FEATURES WORTH REMEMBERING.

High Speed, Close Regulation, Great Capacity, High Efficiency, Perfect Cylinder Gate, Steady Motion.

THE STILWELL-BIERCE & SMITH-VAILE CO.
General Offices and Factory, 261 LEHMAN ST., DAYTON, OHIO.

BRANCH HOUSES: 315 Equitable Bld'g, BALTIMORE, MD. 141 Broadway, NEW YORK. 311 Dearborn St., CHICAGO, ILL. 304 Hennen Bld'g, NEW ORLEANS, LA.

If interested in this line, address the manufacturers.

The D. A. TOMPKINS CO., Charlotte, N. C. Agents.

Water Supply Outfits

FOR AUTOMATIC SPRINKLER, VILLAGE, RESIDENCE AND RAILROAD PURPOSES.
Galvanized Steel and Wood Substructures.

ORNAMENTAL.

Tanks { Cypress, Pine or Galvanized Steel.

Bell Towers, Flag Towers,

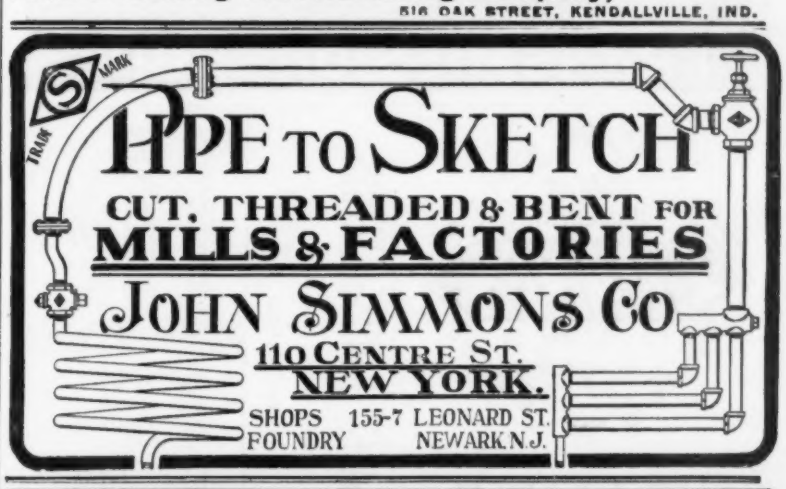
Iron Pumps and Cylinders.

STAR WIND MILLS,

Galvanized Steel or Wood, adapted for Residences, Power or Irrigating Purposes. Designs and Prices Furnished. Write for Catalogue.

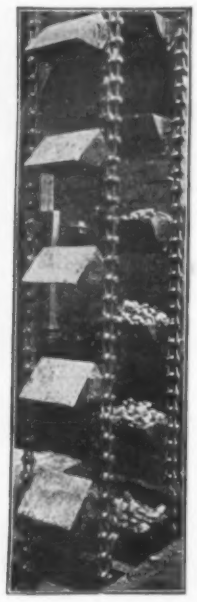
MUNICIPAL.

Flint & Walling Manufacturing Company,
516 OAK STREET, KENDALLVILLE, IND.



Alcott's High Duty TURBINE WATER WHEEL

MOUNT HOLLY, NEW JERSEY.



Link-Belt Apparatus

is entirely void of the intricacies usually inherent to elevating and conveying machinery.

Whether the material be in package or bulk, wet or dry, we are prepared to supply means for handling same with the greatest expedition and economy.

We will be pleased to correspond with parties contemplating improvements. Any inquiry will receive prompt and careful attention.

Link-Belt Engineering Co.
New York: 49 Dey St. Pittsburg: Park Building
CHICAGO: LINK-BELT MACHINERY COMPANY
NICETOWN, PHILA.

Wire Rope. Insulated Wires.

Send for Handsomely Illustrated Catalogs.

Hazard Mfg. Co.,
Wilkesbarre, Pa.

NEW YORK: 50 Dey Street. CHICAGO: H. Channon Co. 24 Market St.

ESTABLISHED 1848. MANUFACTURERS OF IRON, STEEL AND GALVANIZED WIRE ROPE. INSULATED WIRES. UNDERGROUND CABLES. SUBMARINE CABLES. AERIAL CABLES. COPPER WIRE.

Old Colony

TRADE MARK

GEO. B. CARPENTER & CO.
CHICAGO.

NONE SO GOOD FOR THE PRICE. NONE BETTER AT ANY PRICE.

EST'D. 1840

ALL SIZES FROM 1/2 TO 2" IN DIAMETER IN LENGTHS UP TO 5000 FT. IN STOCK.

TRANSMISSION ROPE

HAND POWER — BELT — STEAM — ELECTRIC

HOISTING MACHINERY.

CRANES

THE CASE MFG. CO.
COLUMBUS, O., U. S. A.

CRANES.

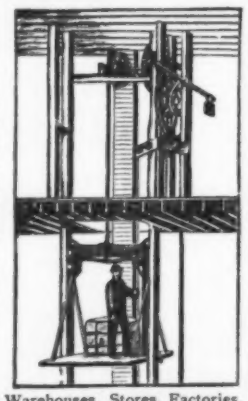
Hand Power Travelling, Hand Power Gib.
EFFICIENT—DURABLE—UP-TO-DATE.

J. G. SPEIDEL, Reading, Pa.

BATES' HAND ELEVATORS,

Pat. April 18, 1871. Reissued July 25, 1875.

OVER 10,000 IN USE.

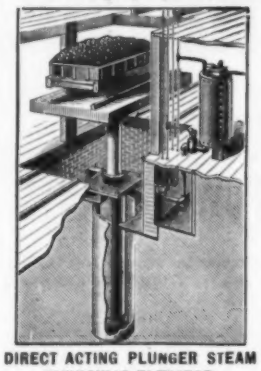


Adapted for Warehouses, Stores, Factories, Hotels, Public Institutions, and every place where merchandise, &c., is transferred from one story to another.

JAMES BATES' SONS,
Successors to JAMES BATES.
Corner Pratt and President Streets,
BALTIMORE, MD.

PLEASE TAKE THE ELEVATOR.

The Ridgway Steam Hydraulic Elevator



DIRECT ACTING PLUNGER STEAM HYDRAULIC ELEVATOR.

attaches directly to the boiler.

Does away with a pump.

Most perfect of elevators for industrial plants. Hundreds in use.

Get a circular and know about this wonderful elevator.

CRAIG RIDGWAY CO., Coatesville, Pa.

FREIGHT

ELEVATORS,

Hand and Belt Power.

POWER HOGSHEAD SCREWS.

THE J. B. WESTBROOKS FOUNDRY AND MACHINE CO.

DANVILLE, VIRGINIA.

General Founders and Machinists.

FREIGHT ELEVATORS

FOR

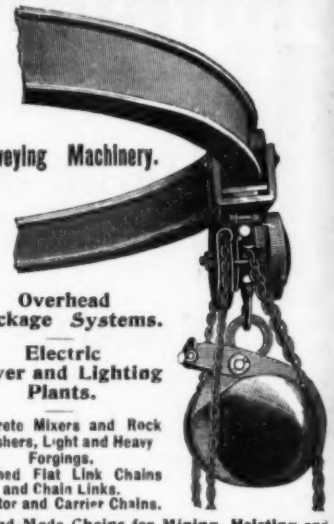
Hand, Belt and Electric Power.

PARKHURST BROS. & CO., Indianapolis, Ind.

New Jersey Foundry & Machine Co.

PLAINFIELD, N. J.

Will Travel In 30 In. Radius.



Conveying Machinery.

Overhead Trackage Systems.

Electric Power and Lighting Plants.

Concrete Mixers and Rock Crushers, Light and Heavy Forgings.
Punched Flat Link Chains and Chain Links.
Elevator and Carrier Chains.

Hand-Made Chains for Mining, Hoisting and Wrecking Purposes, for Cranes, Steam Shovels, etc.

Have You Anything to Sell to Farmers?

If you have, the SOUTHERN FARM MAGAZINE will find new customers for you. The Magazine has in the last four years, as an authoritative periodical of information about agricultural capabilities and conditions in the South, built up an extensive circulation in the Northern, Western and Northwestern States among farmers who want to move South. As a result of its work there has been a constant and rapid increase in the volume of agricultural immigration to the South. With the recent enlargement of its work it becomes invaluable to all intelligent and progressive farmers of the South as a high class exponent of Southern agriculture. Its circulation is being vigorously pushed in all the fourteen Southern States. It is now, therefore, valuable as a means of reaching farmers not only throughout the North but also and especially in all parts of the South.

It will help you to sell Farm and Garden Implements and Machinery, Breeding Stock (Cattle, Horses, Sheep, Swine, Poultry), Stock Remedies, Farm and Stock Appliances and Specialties of every sort, Dairy Supplies, Seeds and Nursery Stock, Fertilizers, Household Articles and everything needed by the farmer or his family.

An advertisement in the Southern Farm Magazine will open up new channels of trade for you. TRY IT!

SOUTHERN FARM MAGAZINE,
Manufacturers' Record Building,
BALTIMORE, MD.

SET 'EM UP YOURSELF

OUR HIGH CLASS ELEVATORS FOR FACTORIES

ARE THE BEST MADE

We ship F. O. B. Chicago, in shape to be installed by any handy mechanic

EXPENSE OF EXPERT ENTIRELY ELIMINATED

We Make All Kinds, But The Needs of Factories in Belt and Hand-Power Elevators is Our Study and Specialty

WRITE FOR OUR NEW CATALOGUE No. 93

EATON & PRINCE CO.

70-76 Michigan St., Chicago

The Morse Elevator,

PASSENGER AND FREIGHT,

Hydraulic, Electric, Steam, Belt, Hand,

Is the safest and best all the time, and the cheapest in the end.

14,000 IN USE.

Morse, Williams & Co.

PHILADELPHIA, NEW YORK, BOSTON, ATLANTA.

Write for Catalogue G. Specialty: HINDLEY WORM GEARING.

JAMES H. CURRAN ELEVATOR CO.

MANUFACTURERS OF

HIGH GRADE PASSENGER AND FREIGHT } **ELEVATORS,**

114-116 W. 2nd Street.
111-113 Burrows Street.

CINCINNATI, O.

CRUTCHFIELD & GRAY, Agents, 1013 E. Main St., Richmond, Va.

"LANG LAY" WIRE ROPE.

Wires and strands twisted in the same direction. Why? To get a longer bearing surface on the wires.

Advantages claimed are greater flexibility and longer life. There's a trick in making it, but we sell it at the same price as ordinary wire rope.

If you don't want this, we can give you the regular lay, and, also, ropes for special applications. Also, equipments for Wire Rope Tramways, Cable Hoist Conveyors, Surface and Underground Haulage, etc.

MANUFACTURED BY

THE TRENTON IRON CO., Trenton, N. J.

NEW YORK OFFICE—COOPER, HEWITT & CO., 17 Burling Slip.
CHICAGO OFFICE—1114 Monadnock Building.

Elevators!

Passenger and Freight

of Every Description.

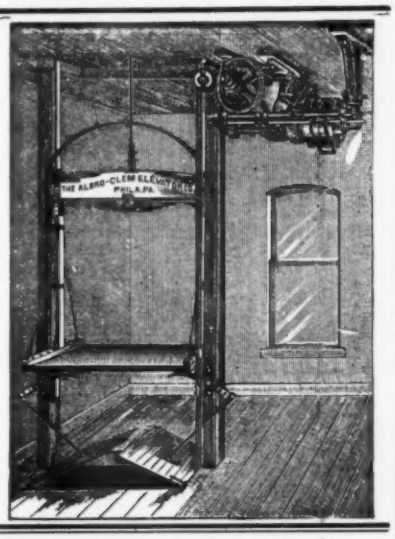
Send for Circulars.

The Albro-Clem Elevator Co.

Main Office and Works:

703 Glenwood Ave,
PHILADELPHIA.

Telephone Connection.



LESCHEN CO'S PATENT AERIAL WIRE ROPE TRAMWAY

For TRANSPORTATION of

Ore, Coal, Timber, &c.

Estimates on Application.

ALSO

And All Kinds of Round Strand

WIRE ROPE

A. LESCHEN & SONS ROPE CO.,

Catalogues on Application.

920-922 N. Main St., St. Louis, Mo.
92 Centre St., N. Y.
47-49 S. Canal St., Chicago, Ill.

Maryland Foundry & Machine Co.

BALTIMORE, MD.

Passenger and Freight Elevators,

SHAFTING, PULLEYS AND HANGERS.

All kinds of Light and Heavy Iron and Brass Castings.

Elevating and Conveying Machinery

for handling all kinds of materials in Mines, Oil Mills, Sugar Refineries, Grain Elevators, Flour Mills, etc.

Link Belt Appliances

for handling Ore, Coal, Clay, Cement, Stone, etc.

TATE, JONES & CO., Inc., Empire Bldg., Pittsburg, Pa.

M·O·N·A·R·C·H WIRE ROPE

TRADE MARK REGISTERED.

(BEST MADE.)

Macomber & Whyte Rope Co.

CHICAGO, ILL.

Manufacturers of

Wire Rope

For All Purposes.

Manila Rope, Blocks, Galvanized Wire, &c.

ASK FOR CATALOG.

Every Mill Man Should Keep Posted by Reading

Power and Transmission

a unique publication in trade literature exclusively devoted to MODERN POWER TRANSMISSION ENGINEERING

Copiously illustrated with typical installations. Other articles of interest to the up to date factory are also contained in each issue. Sample copy free by applying to

THE DODGE MANUFACTURING CO. ENGINEERS, FOUNDERS, MACHINISTS MISHAWAKA, IND. U.S.A.

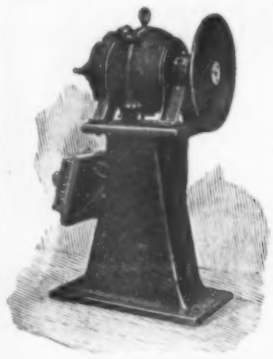
BRANCHES: BOSTON NEW YORK CHICAGO CINCINNATI ATLANTA LONDON, ENG.

United Telpherage Co.

20-22 Broad St., New York, U. S. A.

Automatic Transportation of Material by Electricity.

Send for Circulars Nos. 11-12-14.



LUNDELL ELECTRIC MOTORS

have been on the market for ten years and have demonstrated the fact that they are unsurpassed for Strength, Compactness, Efficiency and Ease of Operation. They are carefully constructed on scientific principles and are adapted to all classes of machine driving. They are the most economical power apparatus you can use. Send for descriptive Bulletin, No. 1206.

SPRAGUE ELECTRIC COMPANY,

GENERAL OFFICES: 527-531 West 34th Street, New York.

BRANCH OFFICES: Chicago Fisher Bldg. Boston, 275 Devonshire St. St. Louis, Security Bldg. Baltimore, Maryland Trust Bldg.

Motors. **COMMERCIAL ELECTRIC COMPANY,** INDIANAPOLIS, IND. Dynamos.

GENERAL INCANDESCENT ARC LIGHT CO.

Factory and General Offices: 572-578 FIRST AVENUE, NEW YORK.

TRADE G. I MARK.

Manufacturers of High-Grade Electrical Supplies.

Write for Attractive Bulletins.

Branch Offices: Chicago, Boston, Cleveland, St. Louis, Cincinnati, Denver.

G. I. INCANDESCENT LAMPS.

NEW YORK. **GENERAL INCANDESCENT LAMP CO.** CLEVELAND.

NEW ENCLOSED FUSE ¾c. EACH.

Rough Handling Will Not Break.

SAMPLES ARE FREE.

Fuse Wire, Fuse Blocks, Fuses, Lightning Arresters, Connectors, Insulators, Magnet Wire.

AMERICAN ELECTRIC FUSE COMPANY,

NEW YORK. CHICAGO. SAN FRANCISCO.

DAVIS COAL AND COKE CO.

MINERS AND SHIPPERS

DAVIS LOCOMOTIVE, STEAM AND SMITHING COALS,

Sole Agent for Elk Garden **Big Vein Cumberland Coal.**

DAVIS COKE FOR ORE SMELTERS, FOUNDRIES, AND FAMILY USE.

Shipments to all points accessible to rail or water.

BALTIMORE. PHILADELPHIA. NEW YORK. BOSTON.

TRADE MARK.

Our New Factory

is now **at work** and we shall soon have an entire **New Stock** of our **latest improved Telegraph Instruments** and other **Electrical Appliances** made by **skilled labor,** of the **best material** with the aid of the **most approved modern machinery and methods,** at prices that surprise.

Have you our No. 18 Catalogue? If not ask for copy. We send it free on request.

Do you use or want **Telephones?** Ask about our "77-13" Phones.

They are great talkers.

J. H. BUNNELL & COMPANY,

Manufacturers, Importers and Dealers in

Telegraph, Telephone, Railway and Electric Lighting Supplies, Instruments, Batteries, Insulated Wires and Line Equipments.

P. O. Box 1256.

20 Park Place, NEW YORK.

SAM'L. J. SMITH & CO.

Charlotte, N. C.

"Everything Electrical"

Send for Catalogue, now out.

Look over your Stock and send for Prices.

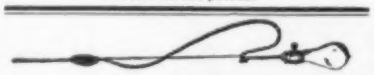
S. B. ALEXANDER, Jr. CO.,

CHARLOTTE, N. C.

We carry the largest stock of

ELECTRIC SUPPLIES

carried in the south. Orders filled promptly. Write us for prices.



Morse Automatic Lamp Adjuster for Mills, Factories, and Shops. Saves time, wear on cord, and is approved by all experts.

INCANDESCENT ELECTRIC LIGHT MANIPULATOR CO.

116 Bedford Street, Boston, Mass.

CROCKER-WHEELER CO.

Works and General Offices,

AMPERE, N. J.

Light Up Your Dark Corners.

The Dietz No. 3 Globe Lamps

(No Chimney)

For City and Town Street Lighting Have No Superior.

Burn Kerosene.
Do Not Smoke.
Easy to Regulate.
Will Stand Strongest Wind.

These lamps give a clear, brilliant, strong light, fully warranted to give satisfaction. Have your committee send for illustrated catalogue and further information.

R. E. Dietz Company,

25 Laight St., New York.

ALABAMA CONSOLIDATED COAL & IRON CO.

BIRMINGHAM, ALA

Manufacturers of the Celebrated Brands of

FOUNDRY IRON:

"Clifton" and "Etowah"

Also Miners and Shippers of HIGH-GRADE STEAM COAL, and Makers of the Well Known **"STANDARD"** FOUNDRY COKE.

Selling Agents for the North and West: MATTHEW ADDY & CO. — CINCINNATI, CHICAGO, ST. LOUIS, PITTSBURGH, PHILADELPHIA, NEW YORK.

MOBILE COAL CO., Agents for Coal and Coke in the Mobile Territory.

Pocahontas Coal

SMOKELESS, SEMI-BITUMINOUS.

Is the Standard Steam Fuel for the World.

CASTNER, CURRAN & BULLITT, Sole Agents, PHILADELPHIA.

BRANCH OFFICES;

1 Broadway, New York. 70 Kilby Street, Boston, Mass. Citizens Bank Bldg, Norfolk, Va.
Neave Building, Cincinnati, O. Terry Building, Roanoke, Va. Old Colony Building, Chicago, Ill.
4 Fenchurch Avenue, London, England.

CROOKED FORK COAL & COKE CO.

Miners and Shippers,

Brushy Mountain Coal,

The Standard Steam Fuel of the South.

MAIN OFFICE: PETROS, TENN.

TOWER-BINFORD ELECTRIC & MFG. CO.

MANUFACTURERS, CONTRACTORS AND DEALERS,

Catalogues, Prices and Estimates on Application. **RICHMOND, VA.**

CO.
n"
LOUIS,
A.
LPHIA.
rfolk, Va.
icago, Ill.
CO.
al,
ENN.
CO.
D, VA.
XUM

K

K

S

Cheapest light of equal candle power in the world.

Why burn 10 gallons of kerosene oil when one will give the same light?

Improved

KITSON

2,000 Candle Power Contractors'

LAMP

Costs only half-cent an hour.

Burns half-pint of kerosene an hour.

Anyone can run it; easily moved from place to place; never flickers; no trouble; power of the arc lamp at one-twentieth the cost of maintenance and installation.

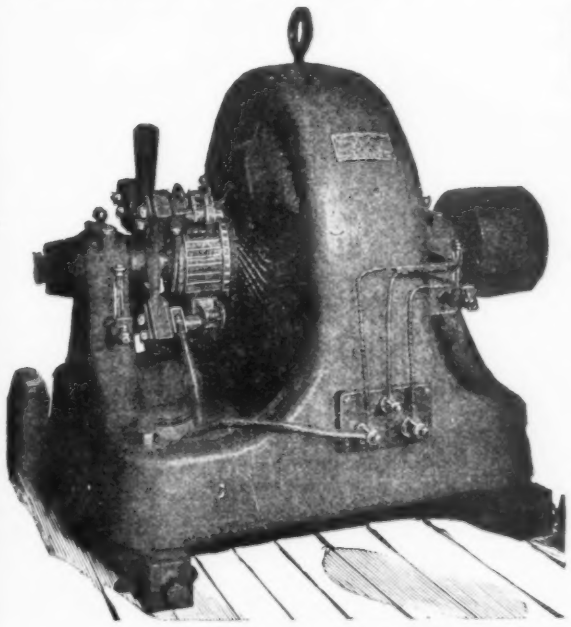
Absolutely Guaranteed In All Respects

EIGHTH AND WILLOW STS., PHILADELPHIA

KITSON

Hydro-Carbon Heating & Incandescent Lighting Co.

Kentucky Dynamos and Motors



SLOW AND MEDIUM SPEEDS.

Open Multipolar Type

3½ to 13½ K. W.
4 to 15 H. P.

Semi-Enclosed Multipolar Type

¾ to 7½ K. W.
1 to 10 H. P.

Full description in Bulletins No. 214 and 215. Write for prices.

MANUFACTURED BY

KENTUCKY ELECTRICAL COMPANY (Inc.),

MANUFACTURERS OF
KENTUCKY Incandescent Lamps, Dynamos and Motors. **OWENSBORO, KY.**

SMETHURST & ALLEN,

W. A. SMETHURST,
RODNEY D. ALLEN.

NORTH AMERICAN BLDG.
Broad Street below Chestnut Street,
PHILADELPHIA, PA.
Long Distance Telephone 4839.

Electric Railway Contractors.

Complete Electric Light and Power Installations. Electric Railway Work a Specialty.

Triumph Electric Company,

CINCINNATI, OHIO.

Slow AND Moderate Speed.

GENERATORS AND MOTORS

Belted AND Direct Connected

FOR

RAILWAY, POWER & LIGHTING.

LATEST DESIGN. Write for Bulletin. HIGHEST EFFICIENCY.

Western Electrical Supply Co.

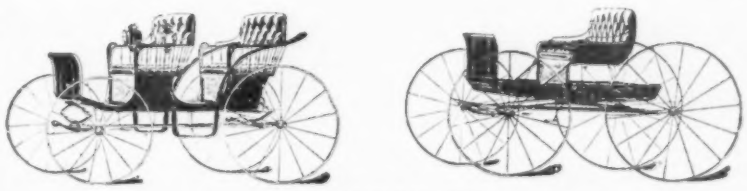
10 and 12 North 9th Street,
ST. LOUIS, MO.

"EVERYTHING ELECTRICAL"

Electrical Apparatus, Lighting Supplies, Electric and Combination Fixtures, Line Material of Every Description.

Electrical Railway Supplies, Telephones, Switchboards and All Accessories, Annunciators, Bells, Pushes and General House Goods Supplies.

Write Us for Catalogues, Prices, etc.



SEND FOR CATALOGUE.

H. H. BABCOCK COMPANY,

BUILDERS OF

High Grade Carriages.

No carriages better known or any that give as good satisfaction, all through the South, as the **Babcock Carriages.**

BRANCH HOUSE,
23-25 W. FAYETTE ST.,
BALTIMORE, MD.

H. H. BABCOCK COMPANY,
WATERTOWN, N. Y.

W. H. JENKS,
Electrical Contractor,
AND DEALER IN
ELECTRICAL SUPPLIES OF EVERY DESCRIPTION.
617 E. Main Street, Richmond, Va.

RIDGWAY

DYNAMO

(Thompson-Ryan Patents),

and

Automatic Engine

(McEwen Patents),

combine the best materials, technical skill and workmanship in their construction. No machine is shipped without having undergone at least one full day's test under full-rated load.

Our Illustrated Catalog gives important details of these machines.

Ridgway Dynamo & Engine Co.
RIDGWAY, PA.

THE CHESAPEAKE ELECTRIC CO.

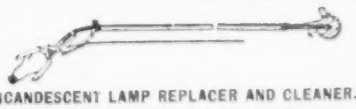
42 S. Charles St., BALTIMORE, MD.

TELEPHONE SUPPLIES,

Construction Tools; Telephones, Line Equipment.

General Electric Company,

Principal Office:
SCHENECTADY, N. Y.
Sales offices in all large cities of the U. S.



INCANDESCENT LAMP REPLACER AND CLEANER.
Handles them at any height or angle.
The Incandescent Electric Light Manipulator Co.
116 Bedford St., BOSTON, MASS.

WHEN IN NEED OF

Insulator Pins, Red Cedar or Chestnut Telephone Poles, or Red Cedar of Any Description,

—do not fail to correspond with—

TENNESSEE LUMBER CO., Lewisburg, Tenn.

Diamond Machine Company, Providence, R. I. U. S. A.

Standard Grinding Machines for 10, 12 and 16-inch Wheels.

The Discount will please you. Price List and Discount on Application.

Jenkins Bros.' Valves

are manufactured of the best steam metal, and are fully guaranteed. Why experiment with cheap valves? If you want the BEST ask your dealer for valves *manufactured by Jenkins Brothers.* Remember all genuine are stamped with Trade Mark like cut.

JENKINS BROTHERS, New York, Philadelphia, Chicago, Boston.

FOR INFORMATION ABOUT

U. S. MAIL CHUTES,

WHICH ARE A NECESSITY IN OFFICE BUILDINGS AND HOTELS. Write to the sole makers.

THE CUTLER MFG. CO., Rochester, N. Y.

PATENTED. AUTHORIZED.

EXAMINE YOUR OIL ACCOUNT

SINGLE ROLL TOP CABINET.

BOWSER CABINETS

PREVENT LOSS and KEEP THE OIL CLEAN.

CATALOGUE "S" IS FREE.

Send Your Address To-day.

FOR THE PAST YEAR.

Then Calculate HOW MUCH OF the **Oil Was Actually Used** and..... **How Much Was Wasted** by being stored in Leaky Barrels and "Slopped" around in drawing before it reached the machinery? THE AMOUNT TO BE CHARGED to "WASTE ACCOUNT" WILL PROBABLY SURPRISE YOU.

Bowser SELF MEASURING.

Shop Oil Cabinets

WILL PREVENT ALL WASTE AND LOSS. THEY PUMP AND MEASURE ACCURATE PINTS, ½ PINTS AND ¼ PINTS AT EACH STROKE, depositing the Oil in the OIL CAN or 'OILER' without measure or funnel.

S. F. BOWSER & CO., FORT WAYNE, INDIANA.

...TO MANUFACTURERS AND CAPITALISTS

Contemplating

THE ESTABLISHMENT OF INDUSTRIAL ENTERPRISES.

Attention is called to the exceptionally favorable location of NEWPORT NEWS, VA., on Hampton Roads, fifteen miles from the sea. Deep water, railway and sea transportation facilities unrivalled. Climate salubrious.

Apply to C. B. ORCUTT, President,

Old Dominion Land Co. 1 Broadway, New York

H. STEVENS' SONS CO., Macon, Ga.

Manufacturers of

Sewer and R. R. Culvert Pipe,

Fire Brick, Milled Clay Flue Pipe and Chimney Tops, Urns, &c. Correspondence Solicited.

Write J. R. WILLIAMS & CO., ARVONIA, VA., for prices on

BUCKINGHAM-VIRGINIA ROOFING SLATE

From the Celebrated "Old Nicholas" Quarries.

DIXON'S PURE FLAKE GRAPHITE

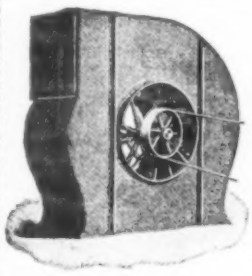
oils the wheels of commerce. It has no equal for creaks and squeaks. Goes farthest; renders the best service. Samples and pamphlet free.

JOSEPH DIXON CRUCIBLE COMPANY Jersey City, N. J.

Main Office, St. Louis, Mo. Branches, 116 N. 3d St., Phila.; Revere Rub. Co., N. Y.; Towner & Co., Memphis; Milner & Kettig Co., Birmingham, Ala.

Buffalo Steel Plate *Fans*

For Heating, Ventilating, Drying, Mechanical Draft.

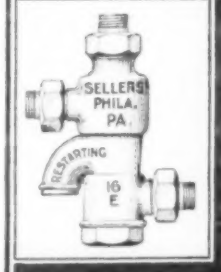


Catalogue.

BUFFALO FORGE CO.,

BUFFALO, N. Y.

Sellers' Restarting Injector



A strictly first class machine at moderate cost.

Perfectly automatic, has wide range of capacities, and raises water promptly with hot or cold pipes.

Very simple, has few parts and is easily repaired.

All parts interchangeable, made of the best bronze, and the workmanship is perfect. Send for special catalogue descriptive of this Injector.

JENKINS BROTHERS, Selling Agents

NEW YORK, BOSTON, PHILA., CHICAGO

Write for Prospectus of our valuable book

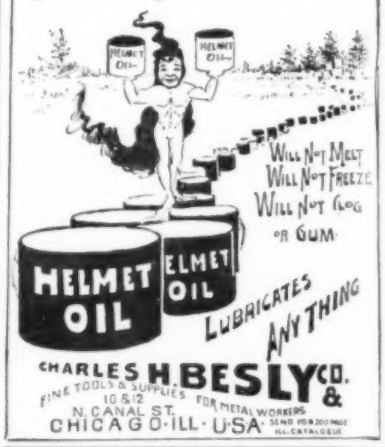
Secrets of Canning.

Tells all about CANNING.

JOHN MURPHY CO. BALTIMORE, MD.

USE THIS

TO COOL A HOT BOX



CHARLES H. BESLY & CO.

FINE TOOLS & SUPPLIES FOR METAL WORKERS

10 & 12 N. CANAL ST.

CHICAGO·ILL·U·S·A·

SEND FOR 200 PAGE ILL. CATALOGUE

FOUNDRY

FACINGS, SUPPLIES, EQUIPMENTS.

No Orders Too Large for Our Capacity. None Too Small for Our Best Attention.

Importers and Refiners of

GRAPHITE AND **CEYLON PLUMBAGO**

For All Purposes. Send for Latest Catalog.

THE HILL & GRIFFITH CO.

Cincinnati, Ohio, U. S. A.

EFFICIENCY

99 22/100 Per Cent. is the record of the World Renowned

PENBERTHY

Automatic Injector.

There is no "Just as Good."

PENBERTHY INJECTOR CO., Detroit, Mich.

Largest Injector Manufacturers in the World.

Black Diamond File Works

Established 1863. Incorporated 1895.

Twelve Medals Awarded at International Expositions.

Special Prize Gold Medal Atlanta, 1895.

Our Goods are on Sale in every leading Hardware Store in the United States and Canada.

G. & H. BARNETT CO., Philadelphia, Pa.

E. E. KELLER, VICE-PRES. GEO. WESTINGHOUSE, PRESIDENT. A. G. HOLMES, MANAGER.

Pittsburg Meter Co., East Pittsburg, Pa.

WATER METERS

THE STANDARD OF METER EFFICIENCY.